

# 1200 BUILDINGS MELBOURNE RETROFIT SURVEY 2013



CITY OF MELBOURNE



# MELBOURNE RETROFIT SURVEY 2013

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#### **Acknowledgements**

The City of Melbourne acknowledges and thanks market research company The Klein Partnership for the survey work that underpins this report. The survey offers valuable insights into the attitudes and trends shaping the commercial building retrofit sector in Melbourne.

#### **Disclaimer**

This report is provided for information and it does not purport to be complete. While care has been taken to ensure the content of the report is accurate, we cannot guarantee the report is without flaw of any kind. There may be errors and omissions or the report may not be wholly appropriate for your particular purposes. In addition, the publication is a snapshot in time based on historic information which is liable to change. The City of Melbourne accepts no responsibility and disclaims all liability for any error, loss or other consequence which may arise from you relying on any information contained in this report.

# INTRODUCTION

The commercial building sector generates greater than 50 per cent of the municipality of Melbourne's greenhouse gas emissions. As articulated in *Zero Net Emissions by 2020*, the City of Melbourne is delivering services that aim to support buildings to improve energy performance.

Through the 1200 Buildings Program, the City of Melbourne encourages building owners and their representatives to manage buildings to optimise energy and water efficiency. Retrofitting can be a difficult endeavor although it almost always pays dividends to building owners by improving the ongoing viability of their assets, in supporting the attraction and retention of tenants and keeping utility and maintenance costs down. Good building management generates economic, social and environmental rewards for building owners, their tenants and the wider community.

In seeking to better support commercial building owners and their representatives, the City of Melbourne completed a comprehensive survey of the sector to quantify retrofit activity in Melbourne. The *Melbourne Retrofit Survey 2013* is the second in a biennial series of surveys of building owners in Melbourne. The first was completed in 2011, and although not publicly available, it is referred to in this survey and offers useful comparisons on retrofit activity as well insights into attitudes and behaviour.

This survey measures the number of buildings that have been retrofitted since 2008 and the series will continue to build a picture of the rate and type of retrofitting every two years. The survey also gathered qualitative data on drivers and perceived barriers to retrofitting. Of a possible 2,256 buildings in Melbourne that contain office space, the representatives of 589 buildings were interviewed by phone and the results recorded in this report.

On behalf of the City of Melbourne and the 1200 Buildings Program, we hope this survey will support the efforts of government and industry in continuing to drive and accelerate retrofitting in Melbourne and Australia.



# KEY FINDINGS

## Level of retrofit activity – 2008 to 2013 (inclusive)

- Since 2008, 25 per cent of the buildings surveyed had retrofitted or are currently undergoing a retrofit. If this percentage is extrapolated to include the entire sample of buildings (2,256), the number currently retrofitting equates to 560 buildings.
- Comparing the level of retrofit activity between the two, five-year periods between 2006 to 2011 (21 per cent) and 2008 to 2013 (25 per cent), it is apparent there has been some acceleration in retrofit activity. So while the number of “current retrofits” in 2011 and 2013 is unchanged there has been more activity in the two years prior to 2013 compared with 2011.

## Level of retrofit activity – current (2013)

- In 2013, 5 per cent of the buildings surveyed were currently retrofitting. If this percentage is extrapolated over the entire sample of 2,256 buildings, it indicates that approximately 111 buildings are currently undertaking a building retrofit.
- The level of retrofit activity has maintained a consistent pace compared with the 2011 results, with 7 per cent of buildings undertaking a retrofit.

## Level of retrofit activity – future

- 16 per cent of the buildings surveyed (366 buildings when extrapolated) claimed they were intending to undertake a retrofit within the next five years. This is a significant increase from 2011 where 10 per cent of buildings indicated their intention to undertake a retrofit within that timeframe. If extrapolated over the entire building stock, the number of buildings planning a retrofit increases from 228 in 2011 to 366 buildings in 2013.
- 32 per cent of buildings either have, are currently, or are planning to retrofit within the next 10 years between 2008 and 2018. Seventy-three per cent of Corporate-owned buildings are intending to retrofit.

## Who is retrofitting?

- The level of retrofitting was significantly higher in buildings owned by Corporate (institutional investor) entities (21 per cent) and significantly lower in buildings owned by Owner’s Corporations.

- Only 4 per cent of Privately-owned buildings were retrofitting. However, due to the relatively larger number of buildings owned by this group, they represent the largest number of buildings retrofitting.
- The greatest percentage of building retrofits were undertaken by the Corporate owner segment.

## Type of retrofit activity

- Lighting upgrades were and continue to be the most common retrofit activity since 2008.
- The type of retrofit activity that occurred between 2011 and 2013 has not changed although there were less boiler upgrades in 2013 compared with 2011.
- The nature of retrofit activity appears to have shifted since 2011 with a significantly greater proportion of buildings undertaking a retrofit “program” (10 per cent in 2013 and 6 per cent in 2011) that is, retrofitting more than once.
- The percentage of buildings that are conducting a building tune-up is very low at 4 per cent.

## NABERS and the business case for retrofitting

- Only 12 per cent of owners surveyed knew their building NABERS Energy rating.
- 19 per cent of respondents have undertaken a retrofit business case within the past two years but the percentage was much higher (50 per cent) in the Corporate owner segment.

## Drivers and barriers to retrofitting

- Replacing a broken asset was the most common reason to retrofit (39 per cent) followed by minimising energy consumption (31 per cent) and attracting tenants (21 per cent).
- 52 per cent of respondents saw retrofitting as an investment and 28 per cent saw retrofitting as a cost.
- 28 per cent of respondents indicated that the “split incentive” was a barrier to retrofitting.
- 35 per cent of respondents indicated that access to finance was a barrier to retrofitting.

## Funding

- 81 per cent of the most recent retrofits had been funded by the owner.







# PROJECT BACKGROUND

## OBJECTIVES

The Melbourne Retrofit Survey 2013 was undertaken to inform the ongoing development and delivery of the City of Melbourne's 1200 Buildings Program. The primary objective was to gauge the level of retrofit activity in Melbourne by asking building owners and their representatives a series of questions to understand current and past retrofit action and future plans for retrofitting.

Qualitative information was also sought to better understand industry perceived drivers and barriers to retrofitting such as the role of the split incentive and access to finance in hindering action.

Finally the survey sought to understand the level of awareness of the 1200 Buildings Program by building owners and their representatives to support more effective service delivery.

## METHODOLOGY

Existing commercial buildings (greater than two years old) located within the municipality of Melbourne, containing some level of office space were targeted for this survey. Of a total of 2,256 buildings, 1,280 were matched with phone numbers and became the survey sample.

The building owners and their representatives (building and facilities managers) of these 1,280 buildings were contacted by phone and asked to participate in the survey. Owners/representatives accounting for 46 per cent or 589 buildings agreed to participate in the 10 minute survey. Fifty-four per cent did not participate.

Comparisons have been made between the Melbourne Retrofit Survey 2013 and a similar survey that was undertaken in 2011 but not publically released.

As respondents were only contacted if a phone number was sourced, the sampling was not entirely random.

## WEIGHTING

As a consequence of the methodology, there was a variation between the composition of respondents (the sample) and the actual make-up of buildings in the Melbourne municipality (the population).

To enable a more robust extrapolation of the sample to a population forecast, it is standard research protocol to "weight" the sample results to the actual make-up or percentage of different types of buildings and ownership segments.

Weighting involves placing more (up weight) or less (down weight) emphasis on the behaviour and opinions of groups within the research sample according to a need to increase or decrease that group's share of voice. This process allows the different groups of owners and buildings to be compared equitably.

The 2013 and 2011 samples have been weighted/re-weighted based on ownership category and building profile provided.

# DESCRIPTION OF OWNER CHARACTERISTICS

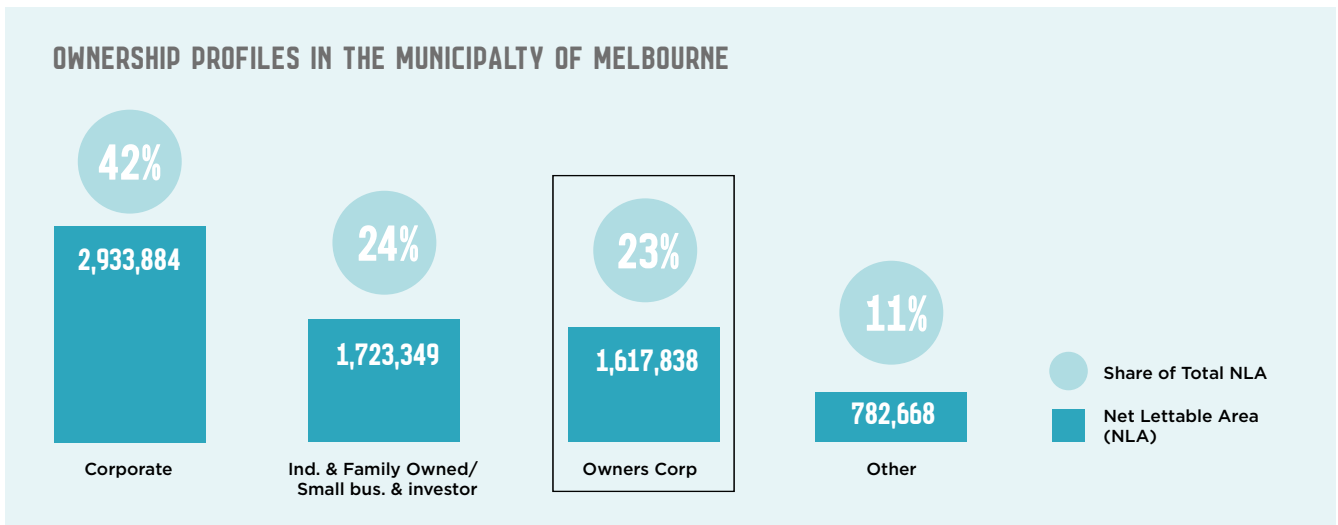


Figure 1 Source: 1200 Buildings Program Segmentation Study, 2009

Three key ownership profiles form the basis of survey reporting and were chosen because these groups own buildings that represent 89 per cent of the net lettable area (NLA) of Melbourne’s building stock containing office space:

- 41.6 per cent of NLA is owned by the “Corporate” segment representing institutional investors
- 24.4 per cent of NLA is owned by the “Individual, Family Owned, Small Business or Investor” segment, referred to as “Private” representing a diverse group of owners
- 22.9 per cent of NLA is owned by the “Owners Corporation” segment representing private owners with strata titles
- 11 per cent of NLA consists of the remaining ownership profiles referred to as “Other”. The Other segment includes government and their agencies, professional associations and not-for-profit organisations.

In addition, there are 39 per cent of buildings in the database that do not have an ownership classification. These are referred to as Unsegmented.

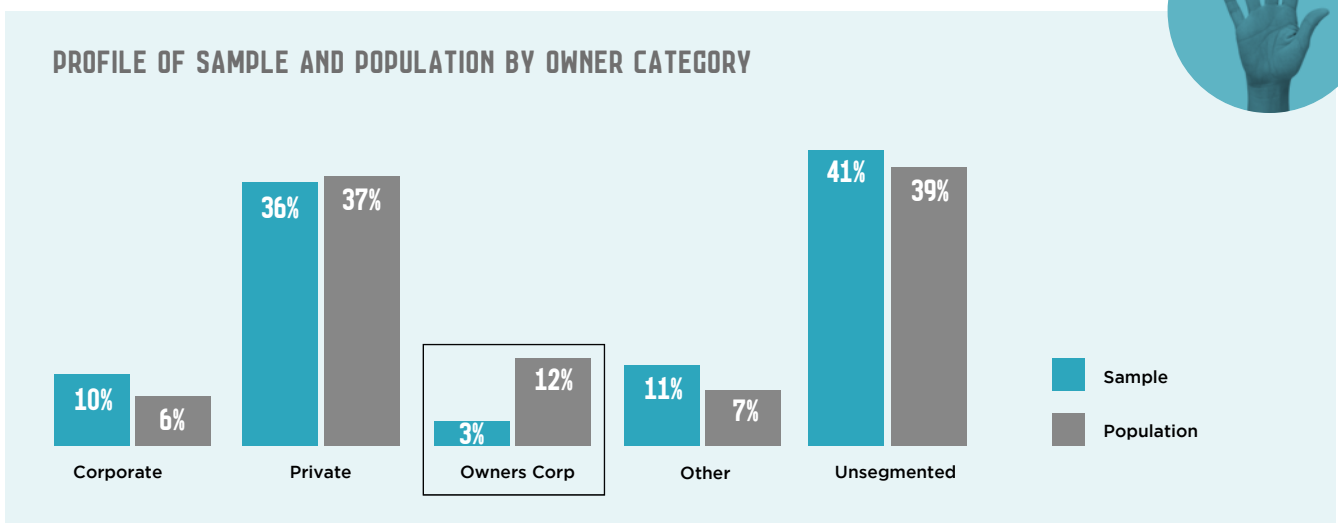


Figure 2 Total un-weighted sample = 589 of 2,256 buildings

In the 2013 survey, 10 per cent of respondents represent Corporate-owned buildings. This figure over-represents this segment which makes up only 6 per cent of the actual buildings in the Melbourne municipality.

Of those surveyed, significantly more buildings owned by the smaller Other grouping were surveyed and significantly less owned by Owners Corporations.

## INTERPRETATION OF OWNERS CORPORATION

Only 17 Owners Corporation buildings were sampled resulting in a statistically small sample. However, as the segment makes up 23 per cent of total number of buildings, it was deemed important to report their results. Responses are recorded by percentage only and have been included to provide insights into behaviours and attitudes only.

## DESCRIPTION OF BUILDING PROFILE

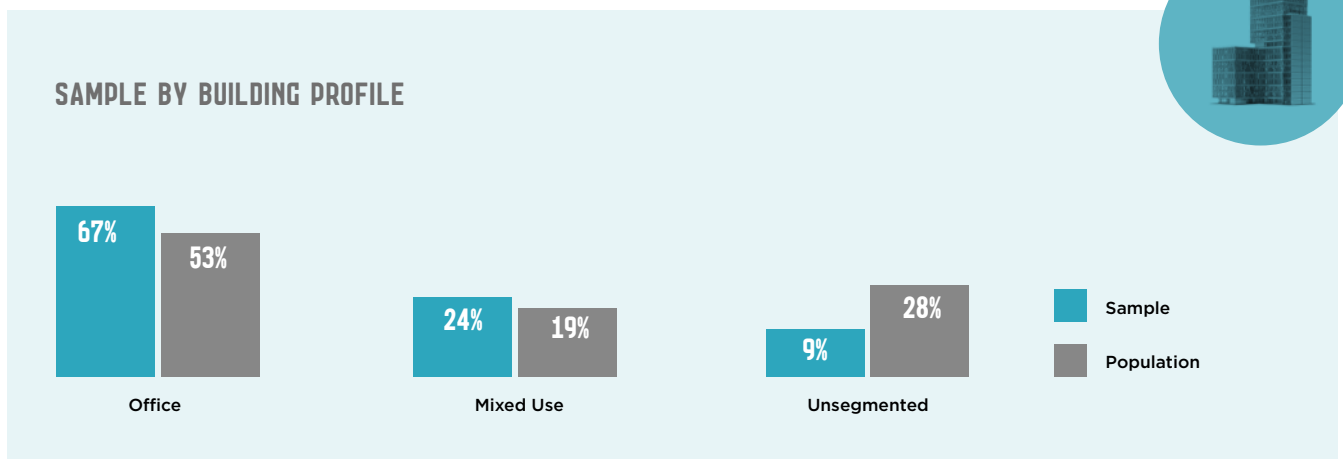


Figure 3 Total un-weighted sample = 589 of 2,256 buildings

In addition to aligning survey results to ownership profiles, the survey also matches results to building type. Three key groups were identified:

- **Office buildings** – Office buildings are defined as commercial buildings containing 70 to 100 per cent office use. Sixty-seven per cent of the buildings surveyed were office buildings although this over-represents the segment. Therefore, the weighting has been adjusted to 53 per cent to reflect the difference.
- **Mixed use buildings** – Mixed use buildings are defined as buildings that contain one to 69 per cent office use. Other uses within these buildings include retail, residential and car parking. The 24 per cent over-representation has been adjusted down to 19 per cent to reflect the correct make-up of this building type in the total mix of buildings.
- **Unsegmented** – The Unsegmented component of the sample is made up of buildings that contain some office space although at the time of the survey the amount was unspecified.

# DEFINITION OF RETROFIT AND TUNE-UP



## Definition of “retrofit”

For the purposes of this study, a “retrofit” (be it current, historic or intended) is defined using the following criteria:

- The implementation of two or more individual retrofit items/actions. For example, the building has undergone an upgrade to its building management system and a new chiller has been installed.
- The building was constructed more than 24 months prior to the activities.

## Definition of “minor retrofit”

Individual retrofit actions have been classed as a “minor retrofit”. For example, if the building owner indicated the retrofit involved the replacement of a boiler only, then that action was considered a “minor retrofit”.

Note that when responding to questions regarding building tune-ups, some respondents listed actions that describe retrofitting rather than building tuning. These actions were subsequently categorised as “retrofit” and moved to the “retrofit” or “minor retrofit” section of the survey.

## Definition of “tune-up”

Tune-up refers to works that improve the function of existing equipment / plant rather than replacement or upgrade of that equipment / plant.

# INTERPRETATION OF STATISTICAL DIFFERENCE

Throughout the report, a 90 per cent confidence level has been applied and means we are 90 per cent confident the population result falls within a margin of error around the survey result and that a difference greater than that margin is a “real” difference and is not statistical variation.

When conducting tests for statistical significance for ownership categories, individual categories are compared against the entire sample of ownership categories. For example, Corporates are compared against Private + Owners Corporation + Other + Unsegmented.

### THIS TABLE LISTS MARGIN OF ERROR BY THE VARIOUS SAMPLE SIZES WITHIN THIS REPORT

	Sample Size	+/-
Within the report, small subgroups result in small sample sizes for some questions. Interpreting sample sizes of 20 to 40 should be undertaken with caution and should be taken as directional in nature only.	20	18.4%
	60	10.7%
	100	8.3%
	200	5.8%
	550	3.5%

# SAMPLE CHARACTERISTICS

Q: What is your role?

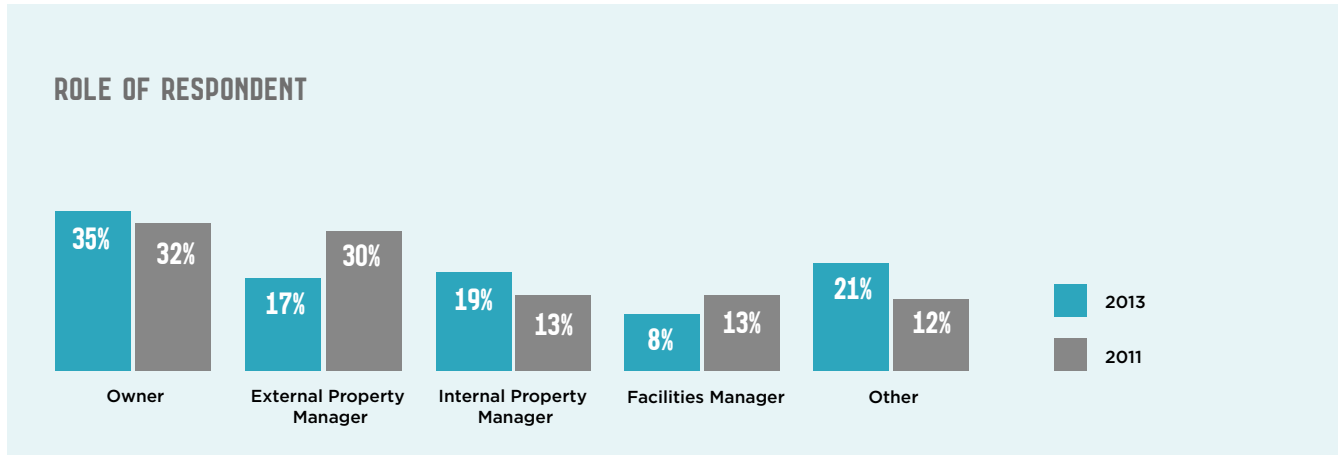


Figure 4 Total sample in 2013 = 589 and in 2011 = 255

Thirty-five per cent of all respondents were building owners. Compared with the 2011 survey, the 2013 sample comprised significantly less External Property Managers and significantly more Internal Property Managers and Other.

Q: Does this building have a facilities manager?

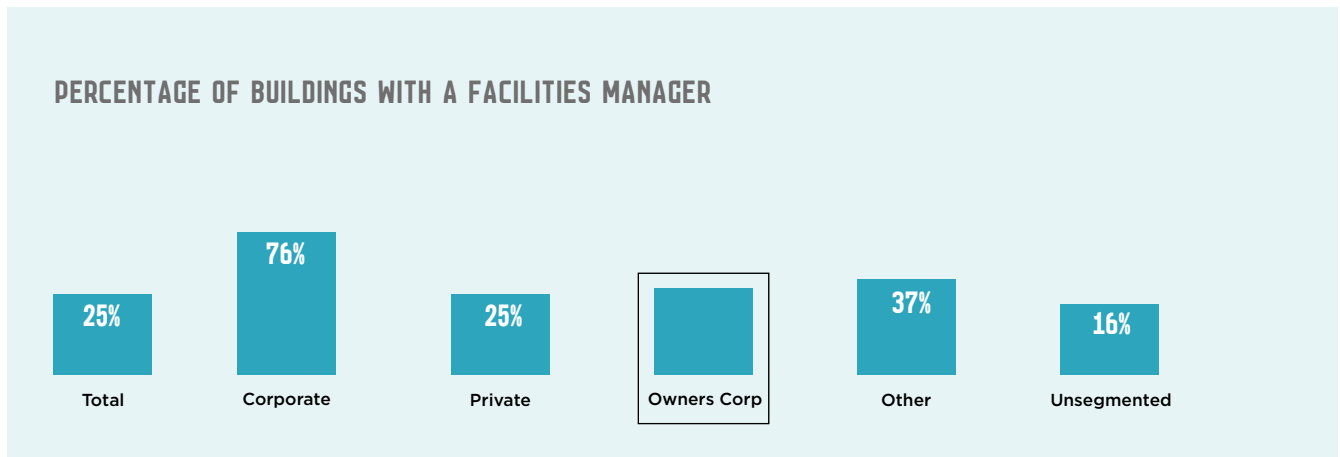
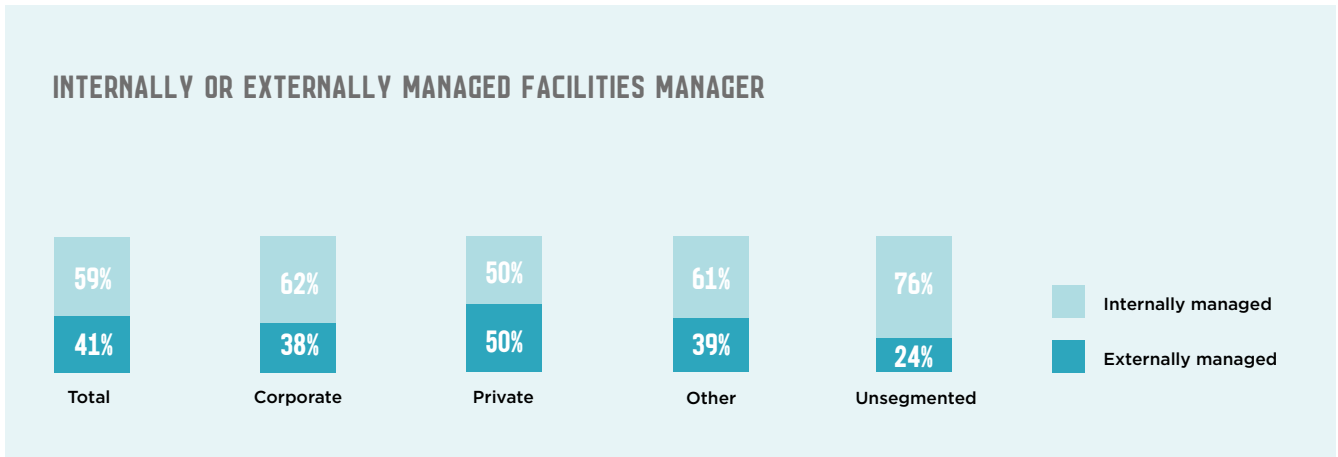


Figure 5 Total = 515, Corporate = 42, Private = 192, Owners Corporation = 13, Other = 56, Unsegmented = 212

Twenty-five per cent of buildings surveyed had a facilities manager. Over three quarters of Corporate owners had a facilities manager but only one quarter of Private buildings had a facilities manager.

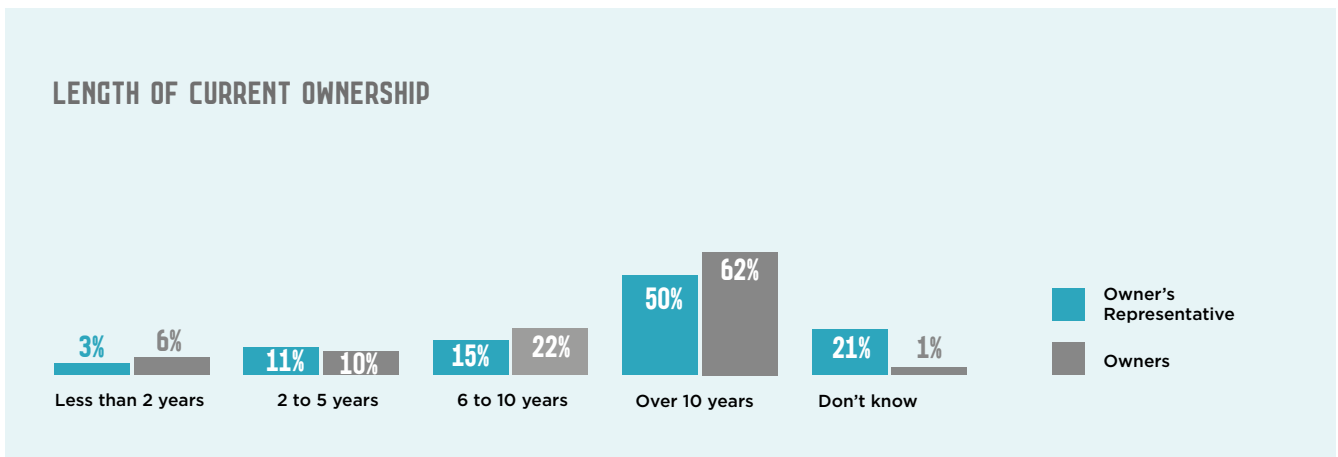
**Q: Is the facilities manager internally or externally managed?**



**Figure 6** Total = 160, Corporate = 32, Private = 48, Other = 21, Unsegmented = 55

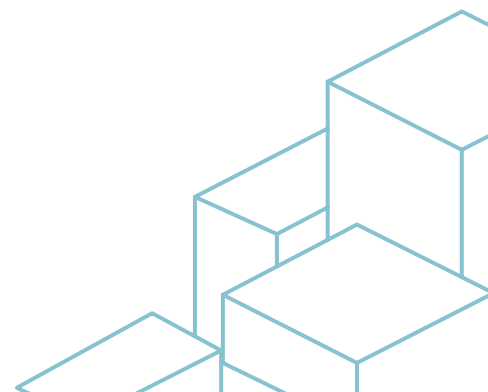
Of the buildings with a facilities manager, 41 per cent were externally managed and 59 per cent were internally managed. External facilities managers were significantly more likely to be evident in Private owner segment buildings. The sample of Owners Corporation owned buildings was too small to report.

**Q: How long has the building been owned by the current owners?**

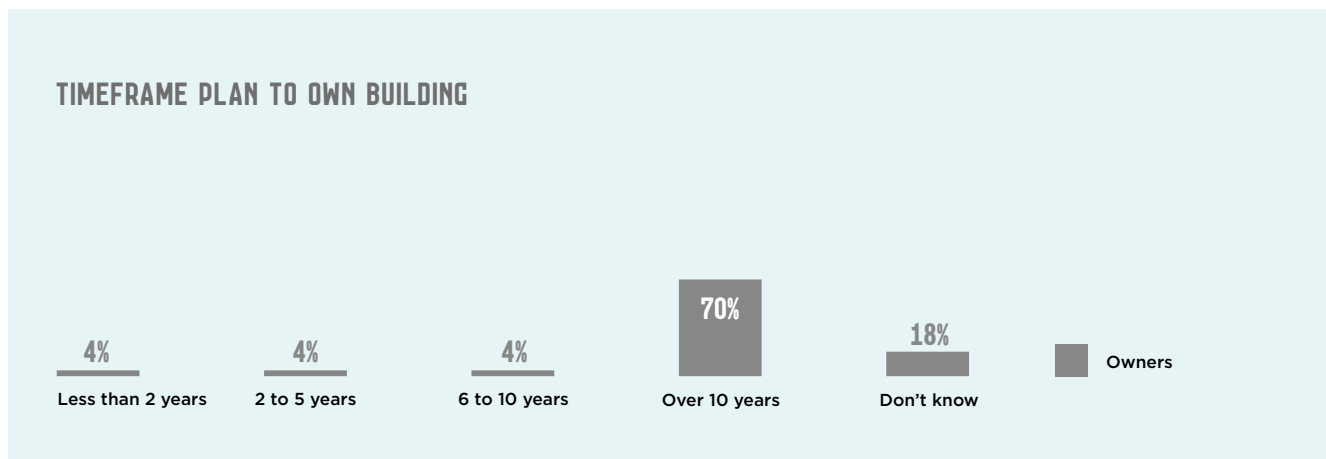


**Figure 7** Owners representatives = 370, owners = 194

Most buildings appear to have been owned for more than six years with approximately half being owned for more than 10 years. Approximately one in seven have been owned for between six to 10 years.



**Q: For how much longer do you plan to own the building?**



**Figure 8** Owners = 194

Most building owners plan to own their buildings for more than 10 years although there is some uncertainty, with 18 per cent of building owners undecided.

# RETROFIT ACTIVITY

## RETROFIT ACTIVITY - CURRENT



+



=



### Q: Are you currently undertaking a building retrofit?

#### *Retrofit by owner category*

Five per cent or 27 buildings surveyed were currently retrofitting. If extrapolated over the entire sample of 2,256 buildings, 111 buildings were currently retrofitting.

The incidence of retrofitting was significantly higher among buildings that were owned by Corporate entities where 21 per cent of the Corporate buildings surveyed were undertaking a retrofit. If extended to the entire sample, the number extrapolates to 27 buildings.

Significantly less “Owner’s Corporations” buildings were currently retrofitting.

While only 4 per cent of Private buildings were retrofitting, this segment makes up the largest quantity of buildings by number and this has resulted in 36 buildings potentially retrofitting.

In 2011, 7 per cent of the buildings sampled were undertaking a retrofit. Statistically, this difference is not significant and would indicate the rate of retrofit activity was steady.

**Refer to Figure 9.**

#### *Retrofit by building profile*

The likelihood of currently undertaking a retrofit did not appear to change by building profile. However, adjusting for actual number of buildings, means that most of the buildings currently retrofitting were office buildings.

**Refer to Figure 10.**

### Q. Which of the following retrofit actions are you implementing?

Eight-three per cent of the retrofit actions cited were lighting upgrades followed by installing or upgrading the building management system (59 per cent), metering (59 per cent) and/or upgrading the chiller (54 per cent).

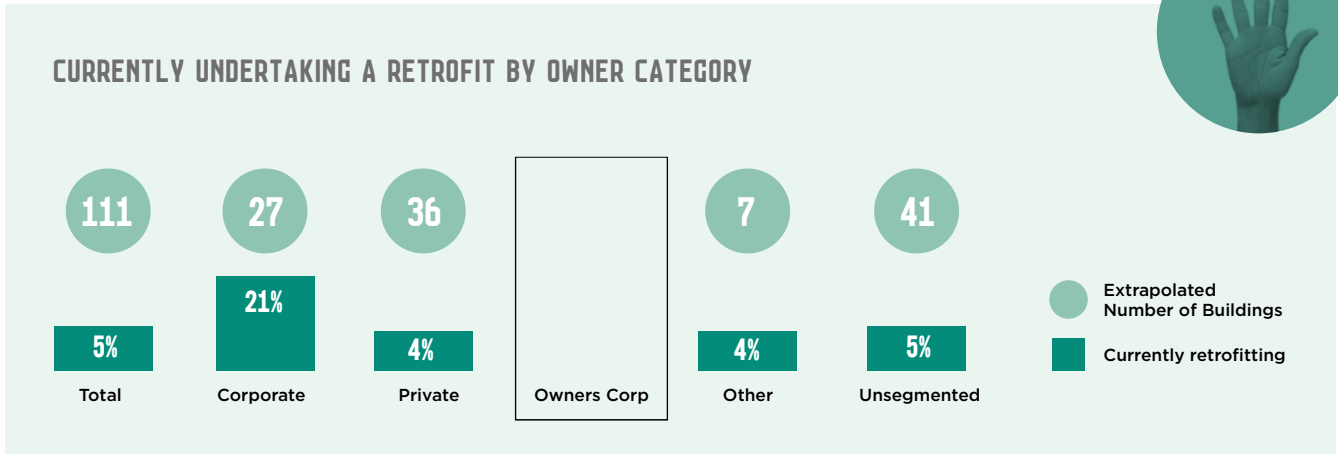
The actions in the “Other” category which accounted for 70 per cent of retrofit actions included building sealing, insulation, cogeneration, lifts, solar panels, facade upgrades (glazing), pumping, “HVAC – Other” (i.e. an upgrade to plant other than boiler, chiller or VSD), cooling tower retrofits and/or internal blinds.

In comparison with the 2011 survey, significantly fewer buildings were undertaking a boiler upgrade (27 per cent in 2013 compared with 72 per cent in 2011) or remedying their building sealing (22 per cent in 2013 compared with 61 per cent in 2011).

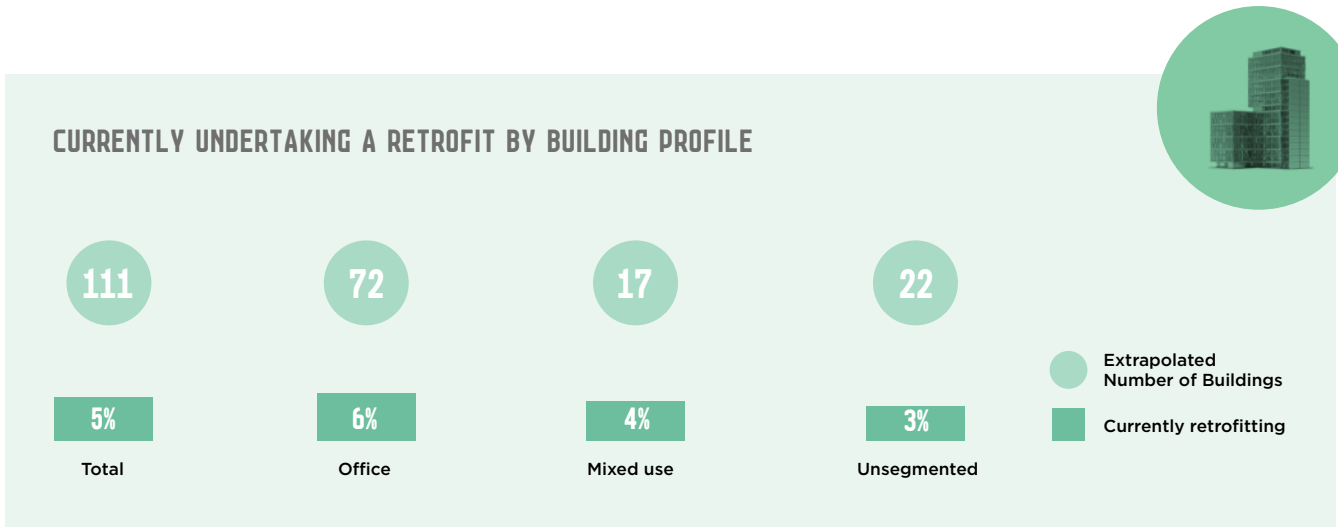
**Refer to Figure 11.**



**Q: Are you currently undertaking a building retrofit?**

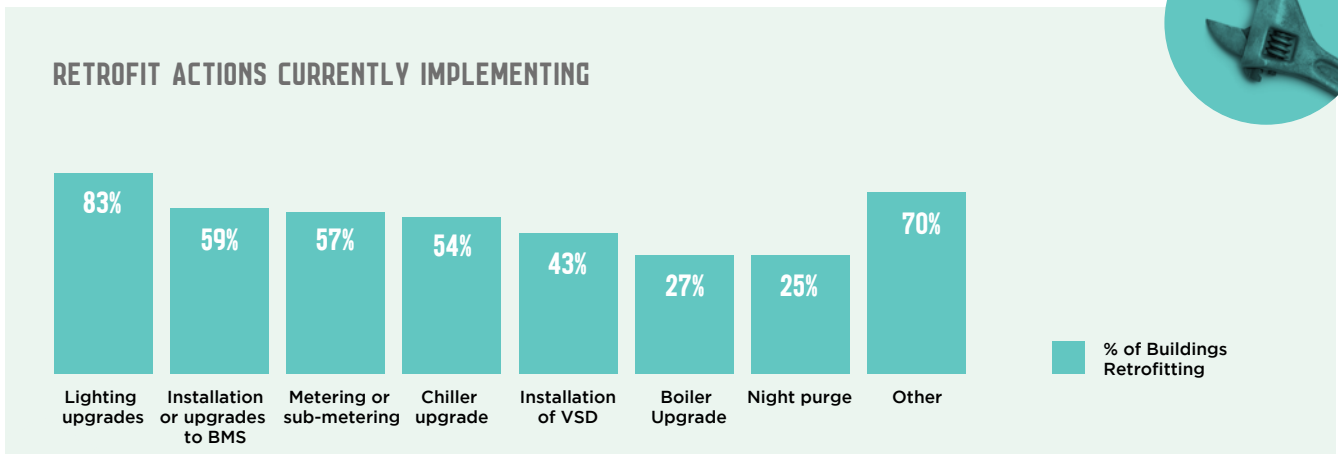


**Figure 9** Total = 552, Corporate = 44, Private = 201, Owners Corporation = 17, Other = 63, Unsegmented = 227



**Figure 10** Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105

**Q. Which of the following retrofit actions are you implementing?**



**Figure 11** Filter = 37

*Note: the sample is small and therefore should be interpreted with caution as the margin of error is +/- 13 percent.*

# RETROFIT ACTIVITY - PAST TO PRESENT (2008 TO 2013 INCLUSIVE)



## Q: Are you currently or have you undertaken a building retrofit since 2008?

### *Retrofit by owner category*

Since 2008, 25 per cent or 147 of the buildings surveyed had undertaken a retrofit or were undertaking a retrofit. If extrapolated over the entire number of buildings, 560 buildings have retrofitted or were currently retrofitting (at the time of this survey).

The 25 per cent of all buildings that have or are retrofitting comprises the 5 per cent currently retrofitting plus the 20 per cent who have retrofitted in the past five years.

Once again the incidence of retrofitting was highest by buildings that are owned by the Corporate segment (i.e. 63 per cent).

Comparing the level of retrofit activity between the two, five-year periods between 2006 to 2011 (21 per cent) and 2008 to 2013 (25 per cent), it is apparent there has been some acceleration of retrofit activity. So while the number of “current retrofits” in 2011 compared with 2013 is unchanged there has been more activity in the two years prior to 2013 compared with 2011.

**Refer to Figure 12.**

### *Retrofit by building profile*

Office buildings were more likely to be retrofitting at the time of the survey and to have undertaken a retrofit in the period from 2008 to 2013, accounting for 350 of the 560 buildings.

**Refer to Figure 13.**

## Q: Which of the following retrofit actions are you implementing or have you implemented (2008 to 2013 including currently retrofitting)?

### *Retrofit actions undertaken*

Lighting upgrades were again the most common retrofit action accounting for 81 per cent of respondents.

Thirty-one per cent of retrofit actions are accrued to the “Other” category and these included water retrofit actions, lift upgrades, solar panels, cogeneration, “Other HVAC” but none of these actions exceeded 7 per cent.

In comparison to the 2011 survey:

- Significantly fewer buildings were undertaking a chiller upgrade (43 per cent in 2013 compared to 60 per cent in 2011)
- There were significantly less boiler upgrades (30 per cent in 2013 compared to 56 per cent in 2011).

However in 2013, significantly more retrofits included cogeneration (5 per cent in 2013 compared with 1 per cent in 2011). This percentage equates to nine cogeneration installations and a projected 26 installations in the future.

**Refer to Figure 14.**

**Q: Are you currently or have you undertaken a building retrofit since 2008?**

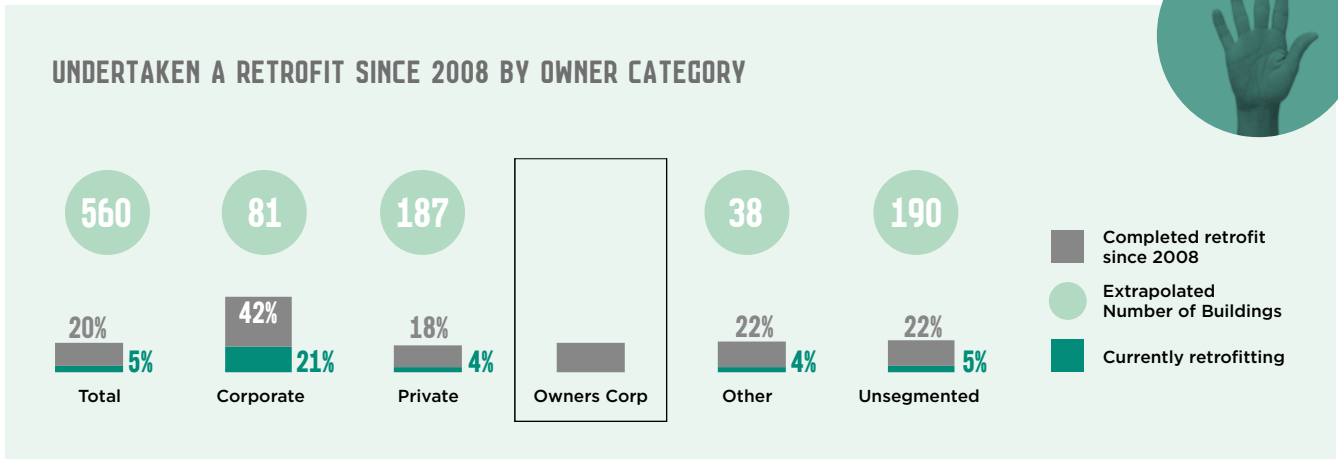


Figure 12 Total sample = 589; Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240

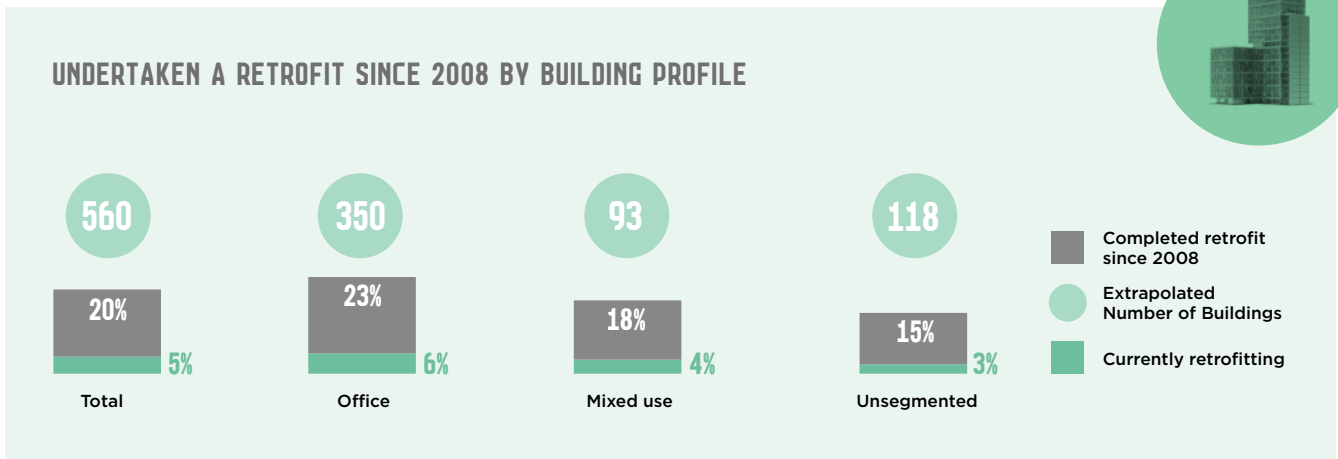


Figure 13 Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105

**Q: Which of the following retrofit actions are you implementing or have you implemented (2008 to 2013 including currently retrofitting)?**

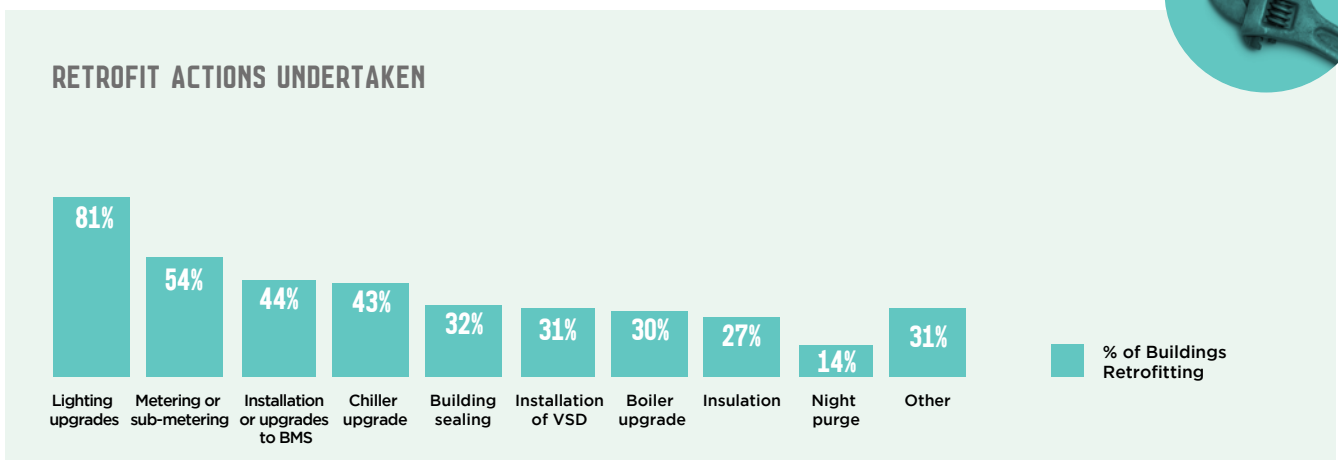


Figure 14 Total = 166

# RETROFIT ACTIVITY - FUTURE INTENTIONS (2013 TO 2018)



## Q: Are you planning to retrofit your building in the next five years?

### *Planning a retrofit by owner category*

Sixteen per cent of the buildings surveyed (or a forecast of 366 buildings) claimed they were intending to undertake a retrofit within the next five years. This is a significant increase on the 2011 results where 10 per cent of buildings flagged an intention to undertake a retrofit in that timeframe. Therefore, this would be an increase in the extrapolated number of buildings planning a retrofit from 228 in 2011 to 366 buildings in 2013.

Although the intention to retrofit was higher amongst the Corporate-owned buildings, the higher numbers of actual Private buildings means that of the 366 planning to retrofit, 112 or 31 per cent were Privately-owned.

A total of 148 or 40 per cent of those planning to retrofit were “Unsegmented”.

**Refer to Figure 15.**

### *Planning a retrofit by building profile*

Once again, the focus would appear to be on office buildings as they represent 60 per cent of the total number of buildings (i.e. 221 of 366 buildings planning to retrofit in the next five years.

**Refer to Figure 16.**

## Q: Which of the following retrofit actions are you implementing or have you implemented (2008 to 2013 including currently retrofitting)?

### *Planned Retrofit actions*

The prominence of lighting upgrades is clearly evident with 78 per cent of future retrofitters planning to include a lighting upgrade.

Comparing intentions to retrofit in 2013 with those stated in 2011, there has been an increase in the intention to install solar panels (18 per cent in 2013 compared to 3 per cent in 2011) and a reduction in buildings installing a variable speed drive (22 per cent in 2013 compared to 42 per cent in 2011).

**Refer to Figure 17.**

**Q: Are you planning to retrofit your building in the next five years?**

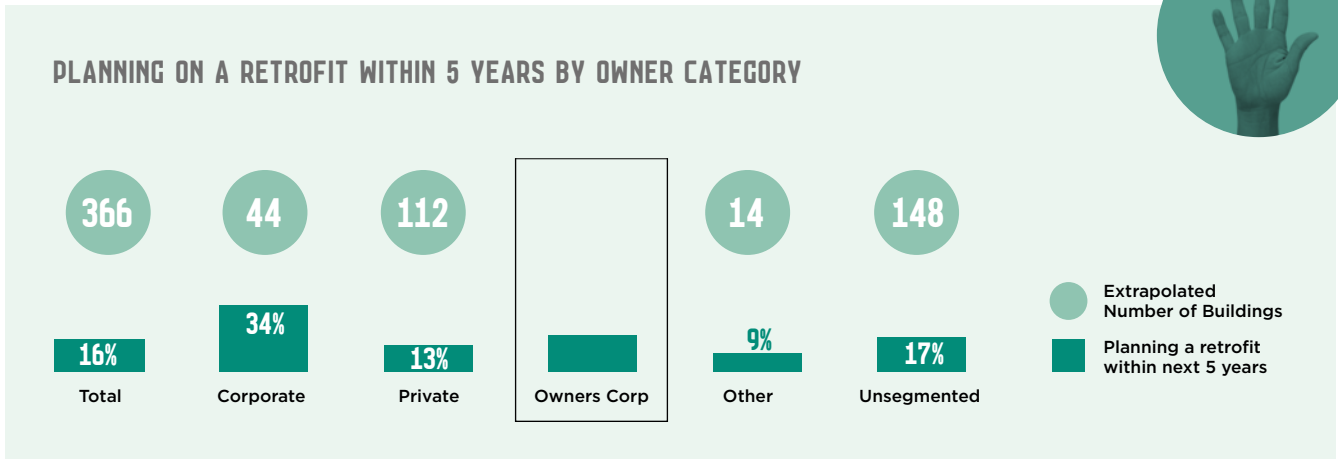


Figure 15 Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240

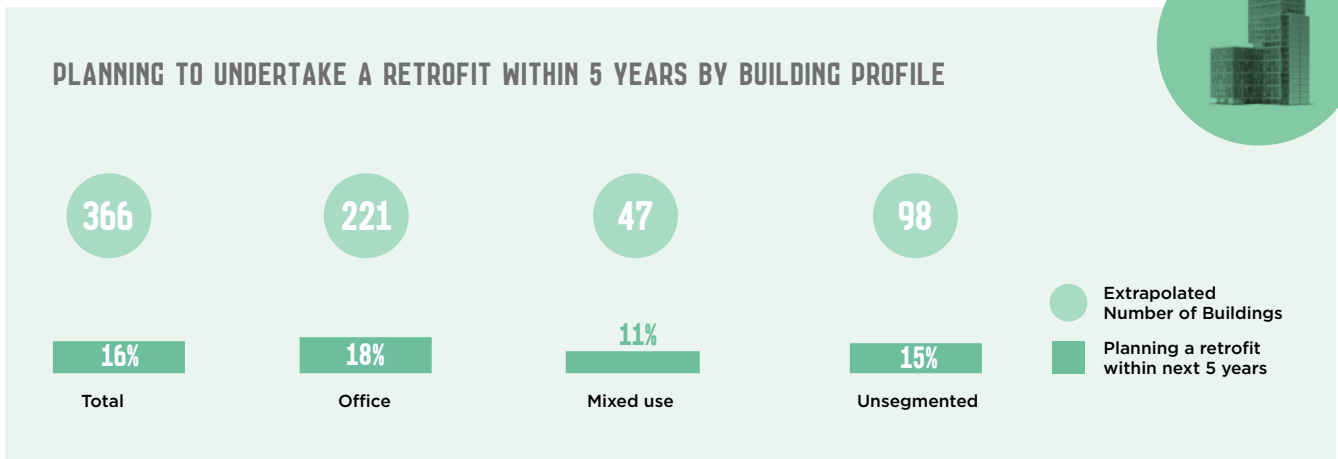


Figure 16 Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105

**Q: Which of the following retrofit actions are you implementing or have you implemented (2008 to 2013 including currently retrofitting)?**

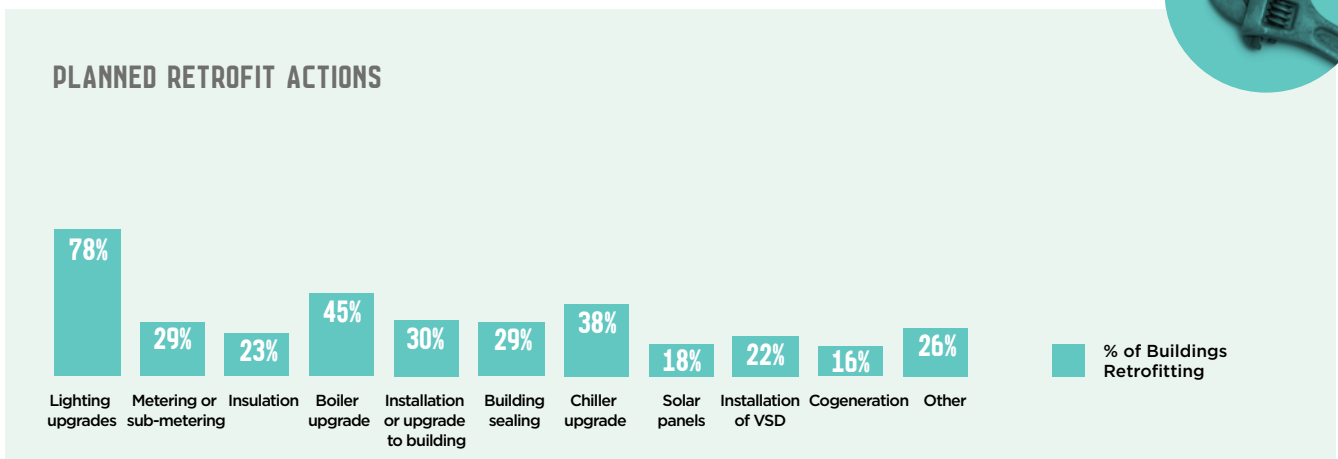


Figure 17 Total = 93

# SUMMARY OF RETROFIT ACTIVITY

The respondents have been classified into three categories according to whether or not their retrofits are once-off or part of a program of works. Respondents who have never retrofitted make up the third category:

- Those who have not conducted any retrofit activity in the past, present and are not planning to in the future (Non-retrofits).
- Those who have conducted a single retrofit activity in the past, present or are planning a single activity in the future (One-off retrofits).
- Those who have conducted multiple retrofit activities in the past, present or are planning to in the future (Retrofit program).

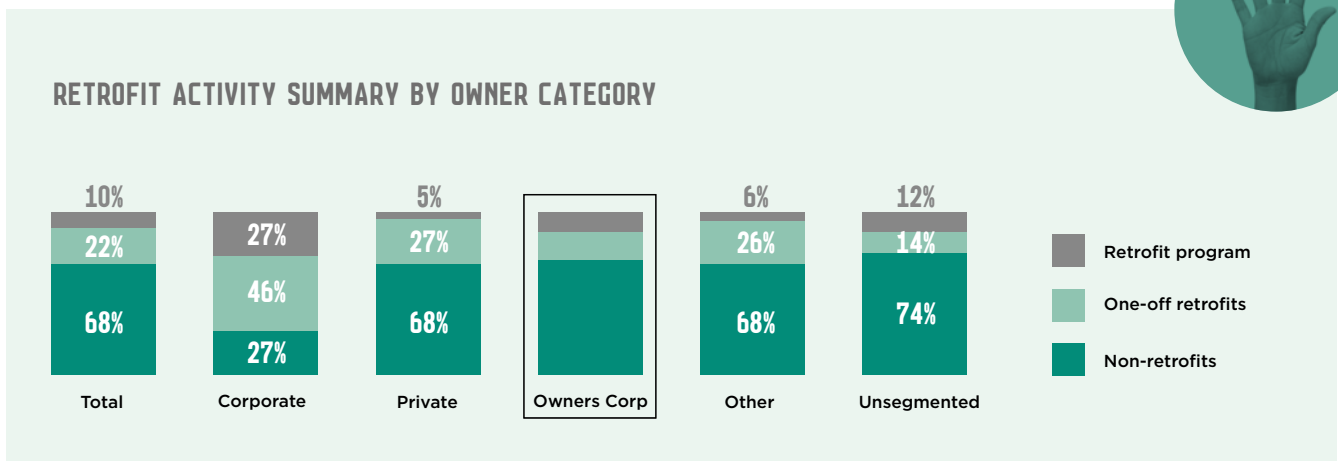


Figure 18 Total sample = 589, Corporate =56, Private =210, Owners Corporation =17, Other =66, Unsegmented =240

The majority of buildings or 68 per cent have not, are not currently and are not planning to retrofit within the next five years (figures from 2008 to 2018).

The Corporate segment is again the exception, where 73 per cent have undertaken one or multiple retrofits. About one quarter of the Corporate segment appears to have an ongoing retrofit program.

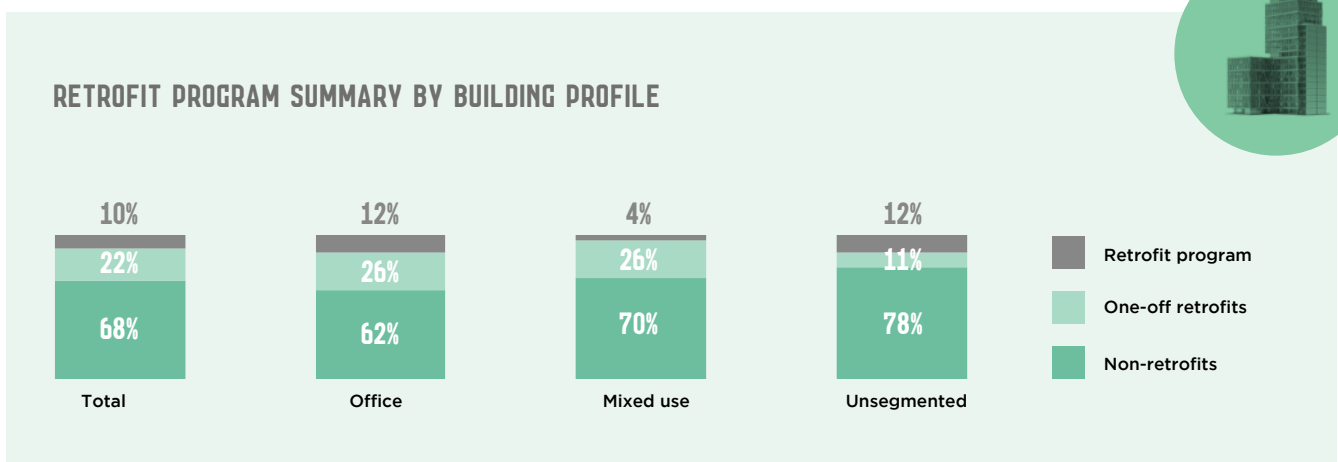


Figure 19 Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105



There were significant differences in the retrofit program activity by building profile. Office buildings were more likely to be retrofitters and more likely to have or to be planning to do a retrofit within the 10 year window (38 per cent).

Mixed use buildings appear to approach retrofitting in a more “discretionary” manner. They have a higher incidence of non-retrofitting and are less likely to have a retrofit program.

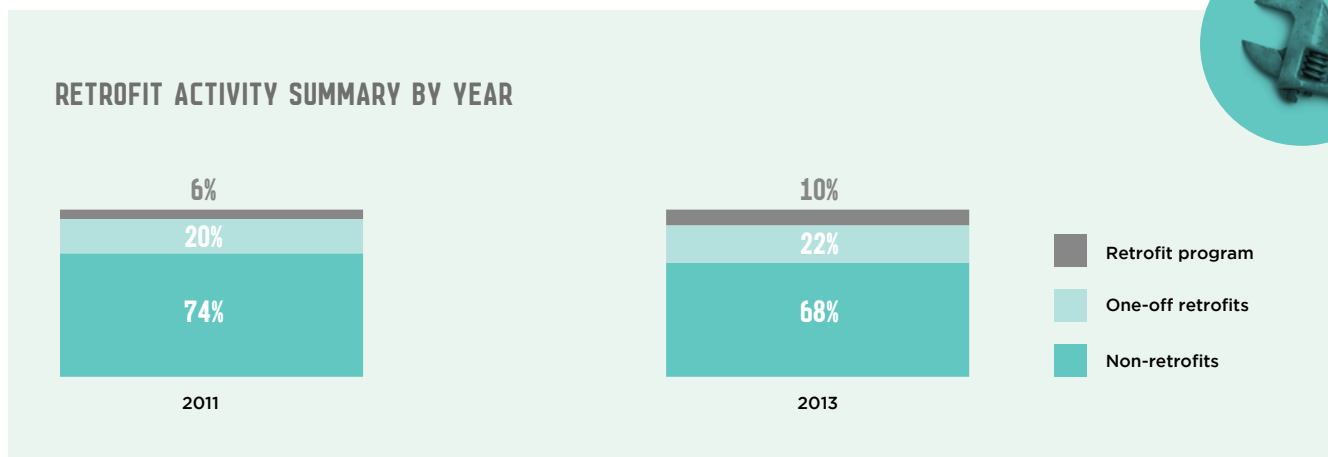


Figure 20 2011 = 360, 2013 = 589

The nature of retrofit activity appears to have shifted since 2011, with a significantly greater proportion of buildings undertaking a retrofit program (10 per cent in 2013 compared with 6 per cent in 2011).



# MINOR RETROFIT ACTIVITY

## MINOR RETROFIT ACTIVITY - CURRENT

Q: Are you currently undertaking a building retrofit?

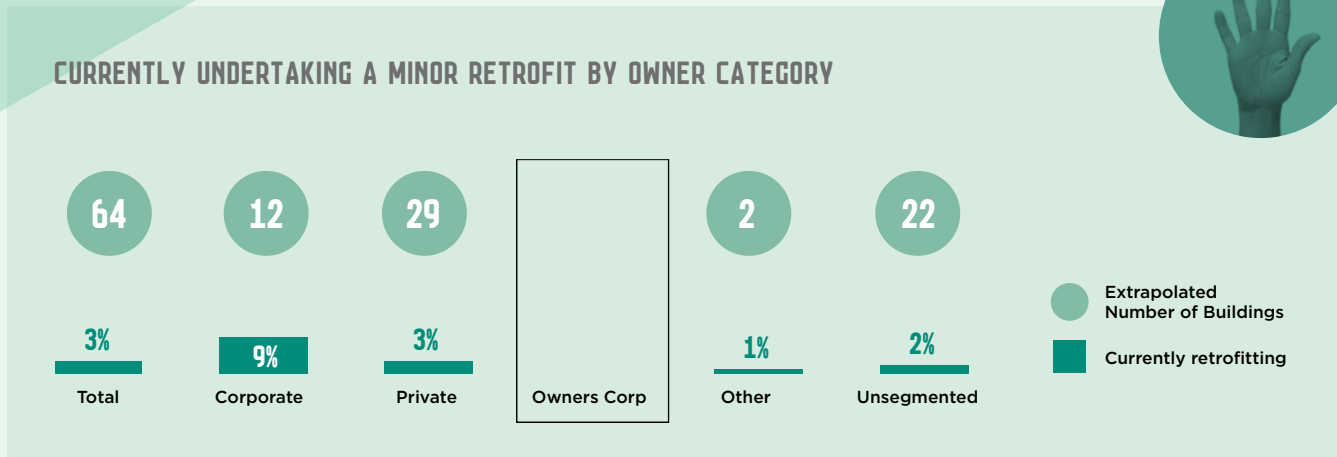


Figure 21 Total = 552, Corporate = 44, Private = 201, OC = 17, Other = 63, Unsegmented = 227

In addition to recording retrofits (two or more retrofit activities), the survey also recorded the level of retrofit activity where only one retrofit action was undertaken. Three per cent of the buildings that were surveyed were currently undertaking one retrofit activity but not undertaking a full retrofit.

The incidence of minor retrofitting was significantly higher for buildings owned by Corporate entities where 9 per cent of the Corporate buildings surveyed were undertaking a minor retrofit.

While only 3 per cent of Privately-owned buildings surveyed were undertaking a minor retrofit, their greater number resulted in a greater number of actions compared with the Corporate segment.

In 2011, 2 per cent of buildings sampled were undertaking a minor retrofit. Statistically, this difference is not significant and would indicate the rate of minor retrofitting is steady.

Q: Which of the following retrofit actions are you currently implementing?

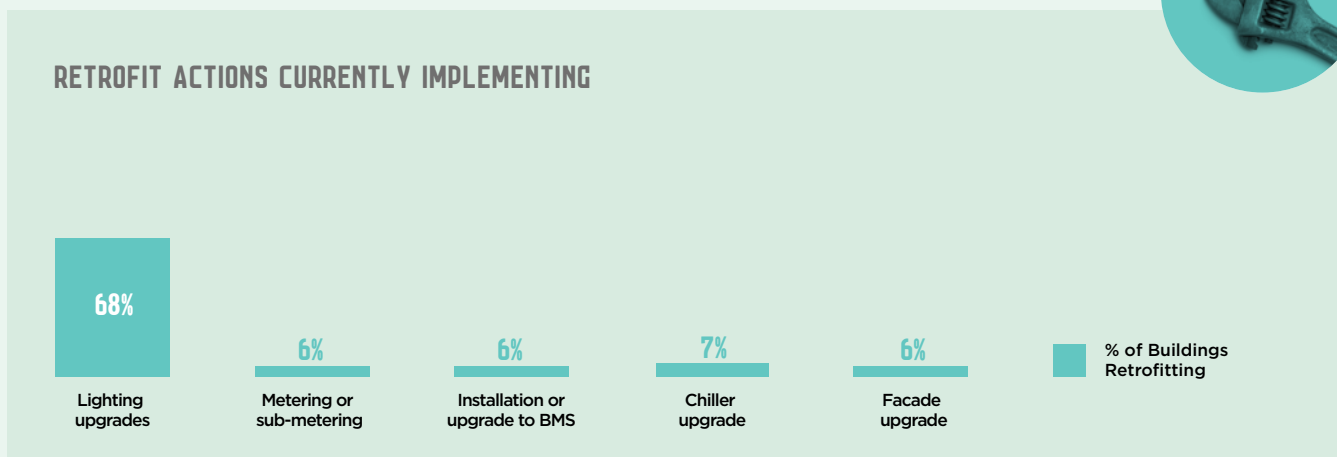


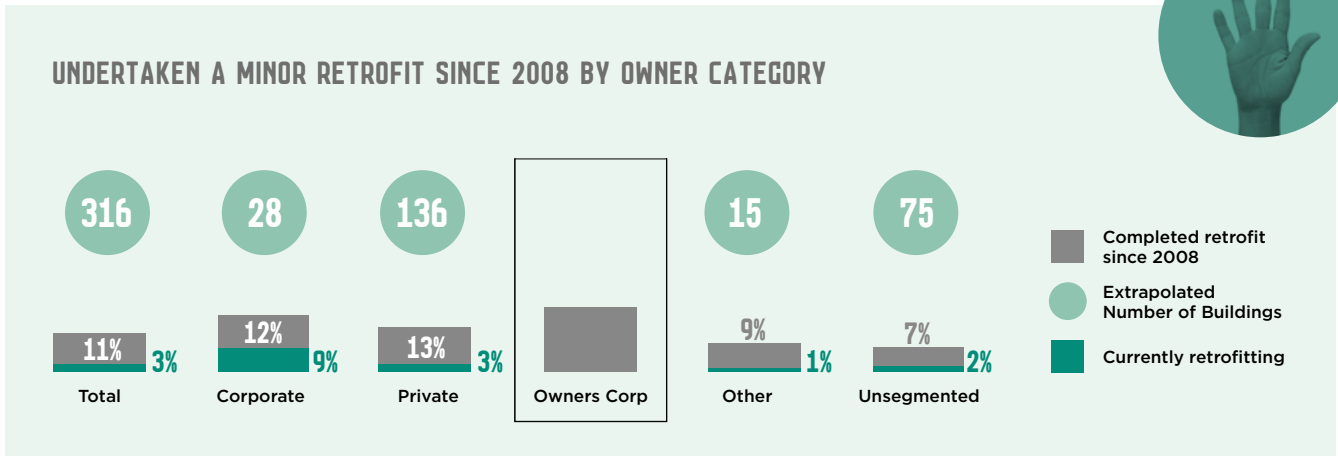
Figure 22 Filter = 17

*Note: the sample is small and therefore should be interpreted with caution.*



# MINOR RETROFIT ACTIVITY - PAST TO PRESENT (2008 TO 2013 INCLUSIVE)

**Q: Are you currently or have you undertaken a building retrofit since 2008?**



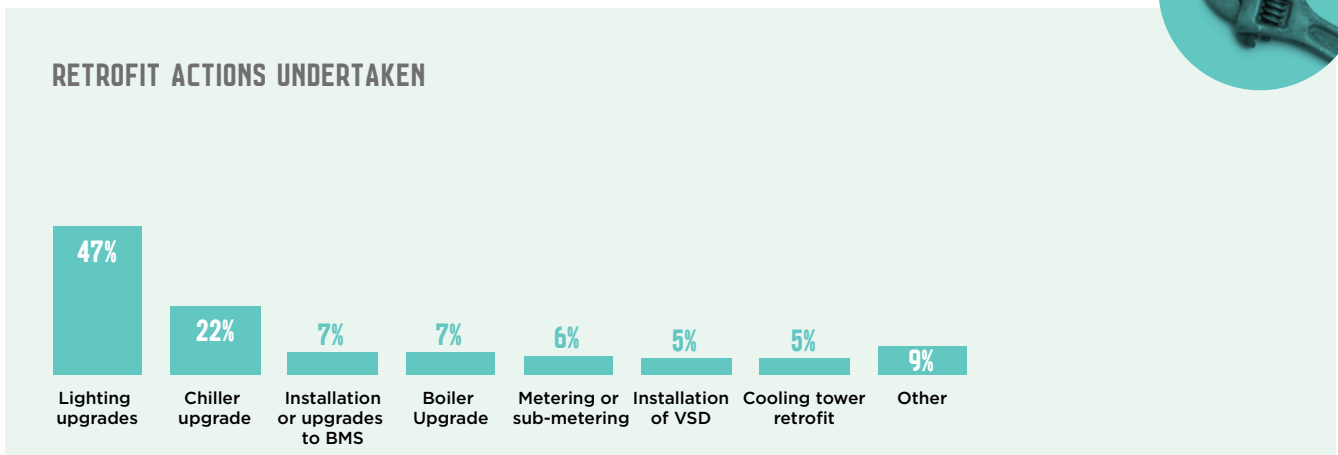
**Figure 23** Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240

Since 2008, 14 per cent of the buildings surveyed had undertaken or were undertaking a minor retrofit. This would indicate that 316 buildings (extrapolated figure) had undertaken or were undertaking a minor retrofit over the five-year period.

The 14 per cent of all buildings that have or are undertaking a minor retrofit comprises 3 per cent currently undertaking a minor retrofit and 11 per cent who had completed some retrofit activity in the past five years.

This level of activity is unchanged from 2011 when 13 per cent of buildings were undertaking or had completed a minor retrofit in the five-year period between 2006 and 2011 or were undertaking a minor retrofit in 2011.

**Q: Which of the following retrofit actions are you implementing or have you implemented (2008 to 2013 including currently retrofitting)?**

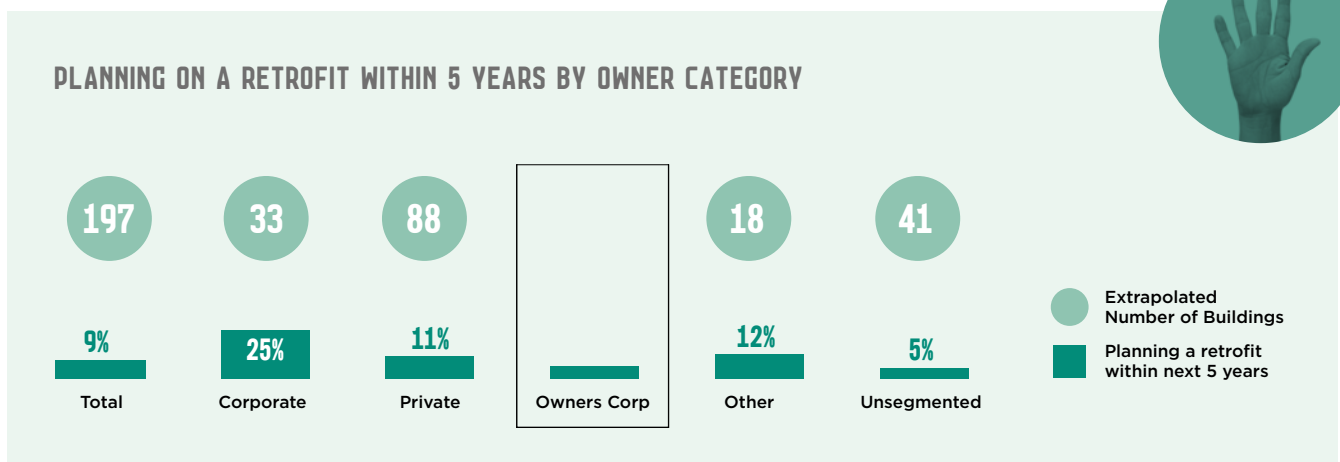


**Figure 24** = 79

Once again, lighting upgrades were the most common element involved in a minor retrofit with 47 per cent of building retrofit activities incorporating lighting upgrades.

# MINOR RETROFIT ACTIVITY - FUTURE INTENTIONS (2013 TO 2018)

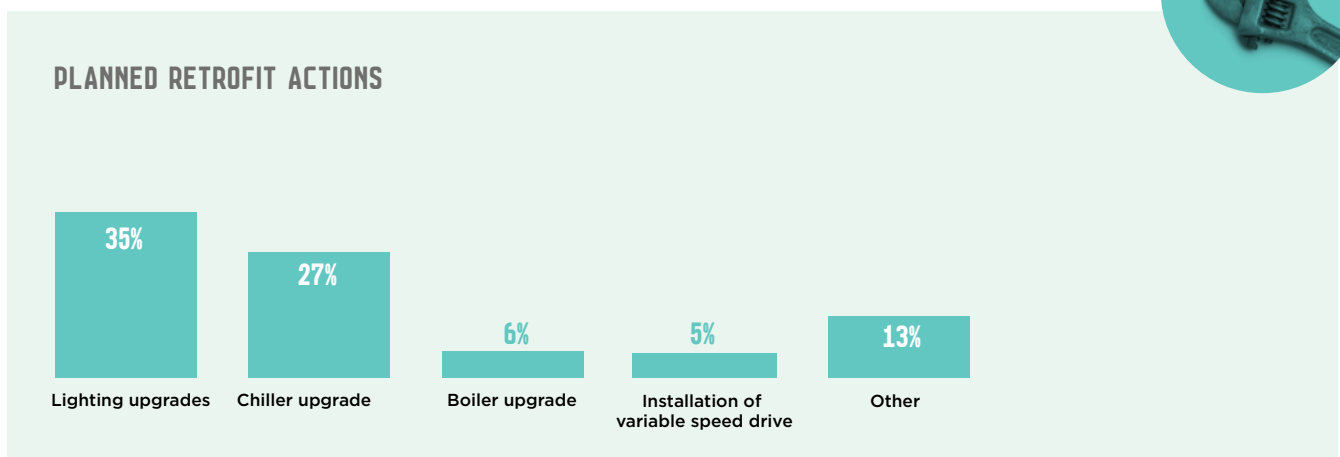
**Q: Are you planning to retrofit your building in the next five years?**



**Figure 25** Total sample = 589, Corporate =56, Private =210, Owners Corporation =17, Other =66, Unsegmented =240

Nine per cent of the buildings surveyed (or a forecast of 197 buildings) claimed they were intending to undertake a minor retrofit within the next five years. This is a significant increase on the 2011 results where 4 per cent of buildings flagged an intention to undertake a minor retrofit within that timeframe. This amounts to an increase in the extrapolated number of buildings from 90 in 2011 to 197 buildings in 2013.

**Q: Which of the following actions would your retrofit entail?**



**Figure 26** Total = 93

The prominence of lighting upgrades is clearly evident, with 35 per cent of future retrofits involving a lighting upgrade.



52

# TUNE-UP ACTIVITY

## BUILDING TUNE-UP ACTIVITY - CURRENT (2013)



### **Q: Are you currently undertaking a building tune-up?**

#### *Tune-up by owner category*

In addition to seeking feedback on the level of retrofit activity in Melbourne, the survey sought to better understand the prevalence of other activities that improve building performance such as building tune-ups.

There was confusion by some respondents when answering the question, “Are you currently undertaking a building tune-up?”. Generally a building tune-up involves “tweaking” existing plant and equipment to improve its performance. Alternatively, a retrofit generally involves the installation of new plant and equipment. On a number of occasions a retrofit activity was cited rather than a tune-up activity. When this occurred, the response was counted in the retrofit section of the report.

In addition to the confusion around the definition of a retrofit versus a tune-up, there was also confusion about the difference between a building tune-up and routine maintenance. For example, a number of respondents cited periodic “checking” of plant as a tune-up. These responses have led the City of Melbourne to view the results as a general guide only and therefore numbers have not been included. Also, a separate category has been included in the graph to account for the misrepresentation of maintenance for tune-up.

Four per cent of buildings were undertaking a tune-up and again the incidence was significantly higher in Corporate buildings.

Despite the small sample, Owners Corporations appeared to be more likely to be undertaking some form of general maintenance although no tune-up actions were recorded.

Combining the responses of current retrofit and current tune-up activity, 9 per cent of the building sample are currently undertaking an activity that will improve the building’s efficiency, with 39 per cent of the activity generated by the Corporate segment.

**Refer to Figure 27.**

#### *Tune-up by building profile*

It would seem that office buildings are more likely to be undertaking a building tune-up and that the incidence of “tuning” among the “Mixed use” and “Unsegmented” buildings was low, with only 3 per cent and 1 per cent respectively.

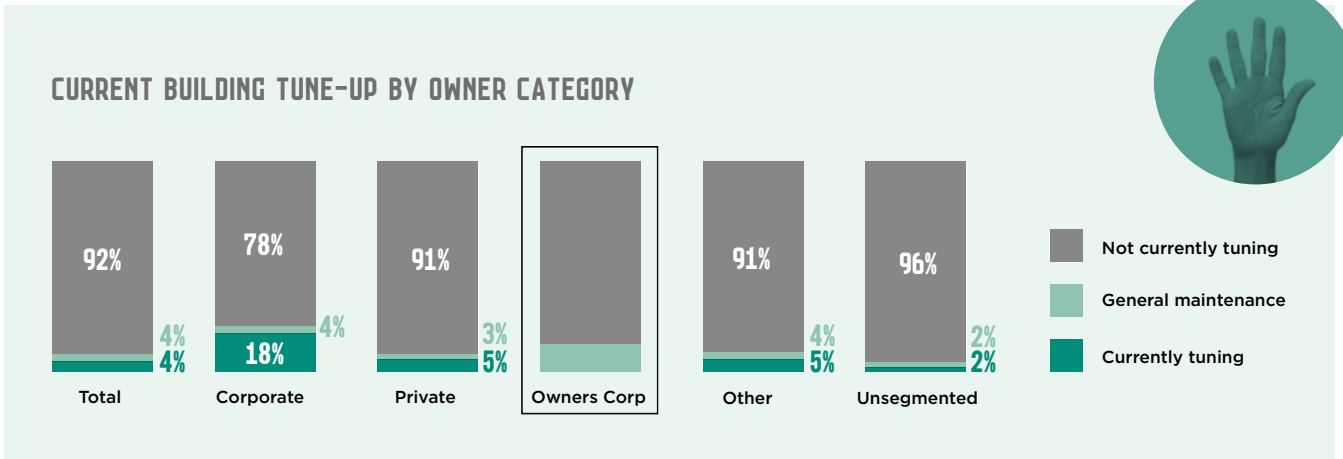
**Refer to Figure 28.**

#### *Building tune-up actions*

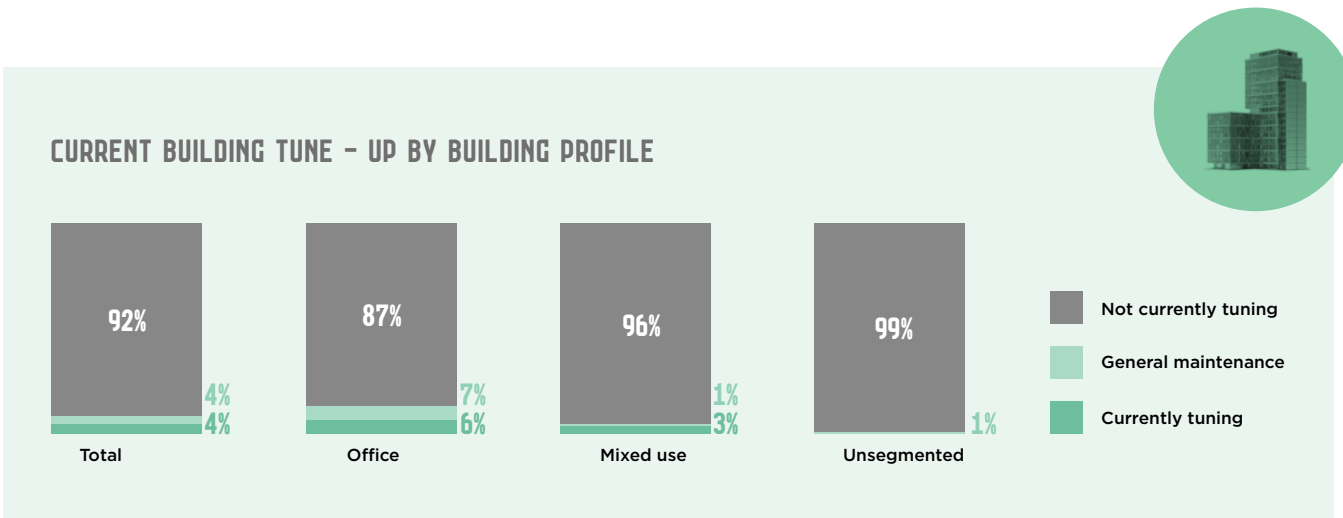
While the focus in the retrofit section was on lighting upgrades, lighting was less prominent in the building tune-up section, with 59 per cent of buildings tuning HVAC, 30 per cent tuning the BMS and 27 per cent tuning their lighting.

**Refer to Figure 29.**

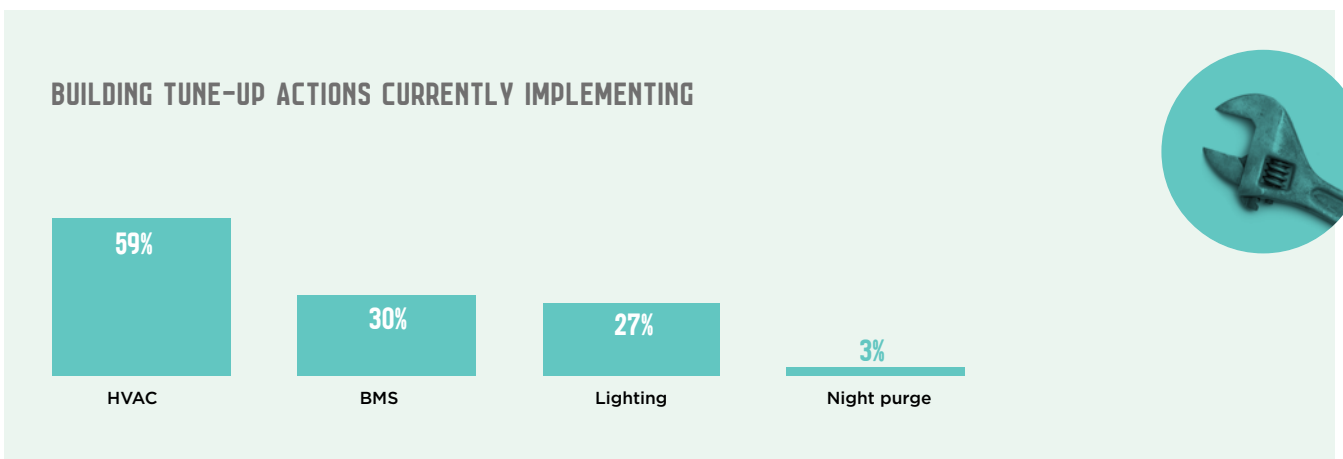
**Q: Are you currently undertaking a building tune-up?**



**Figure 27** Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240



**Figure 28** Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105



**Figure 29** Total sample = 31

*Note: The sample is small and therefore should be interpreted with caution as the margin of error is +/- 13 per cent.*

# BUILDING TUNE-UP ACTIVITY - PAST TO PRESENT (2008 TO 2013 INCLUSIVE)



**Q: Are you currently or have you undertaken a building tune-up since 2008?**

## *Tune-up by owner category*

Twenty-one per cent of buildings have undertaken or are undertaking a building tune-up since 2008.

The “Owners Corporation” segment does not appear to be engaged in building tuning.

**Refer to Figure 30.**

## *Tune-up by building profile*

Corporate owners have and continue to be more engaged in tune-up activities than other segments

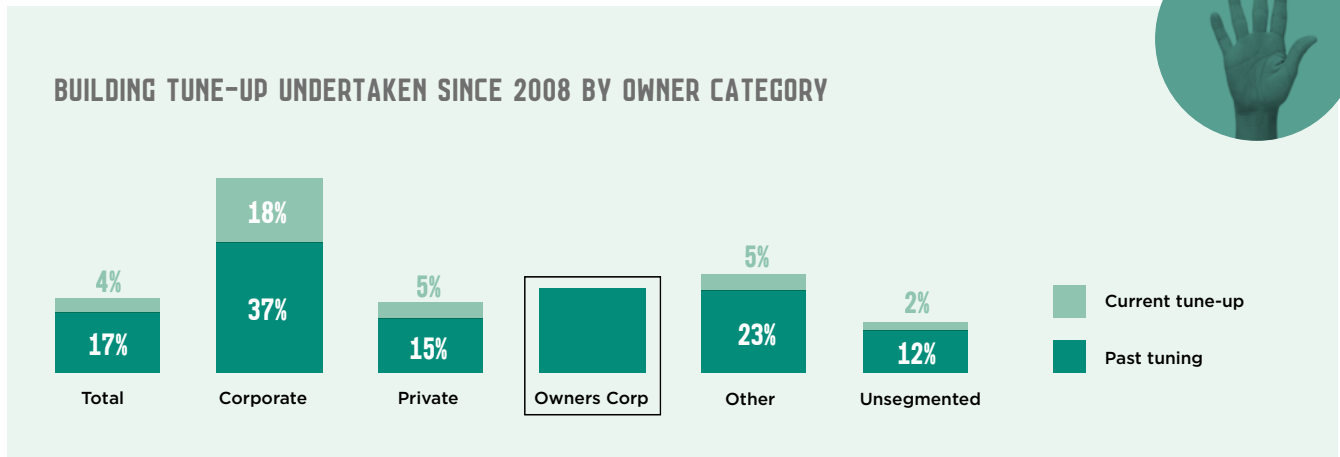
**Refer to Figure 31.**

## *Building tune-up actions*

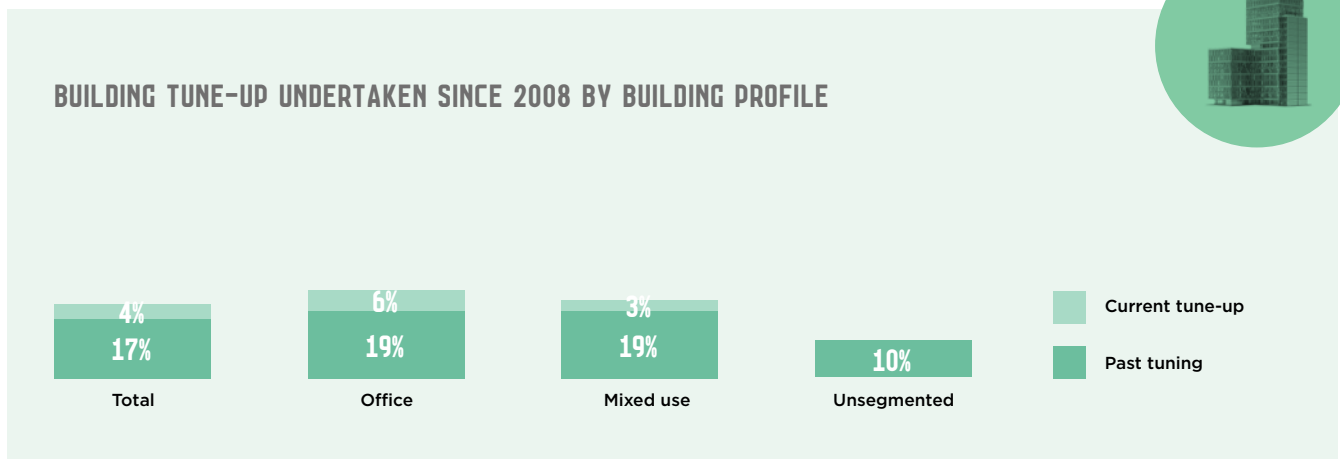
The greatest number of building tune-ups involve HVAC systems followed by lighting and BMS.

**Refer to Figure 32.**

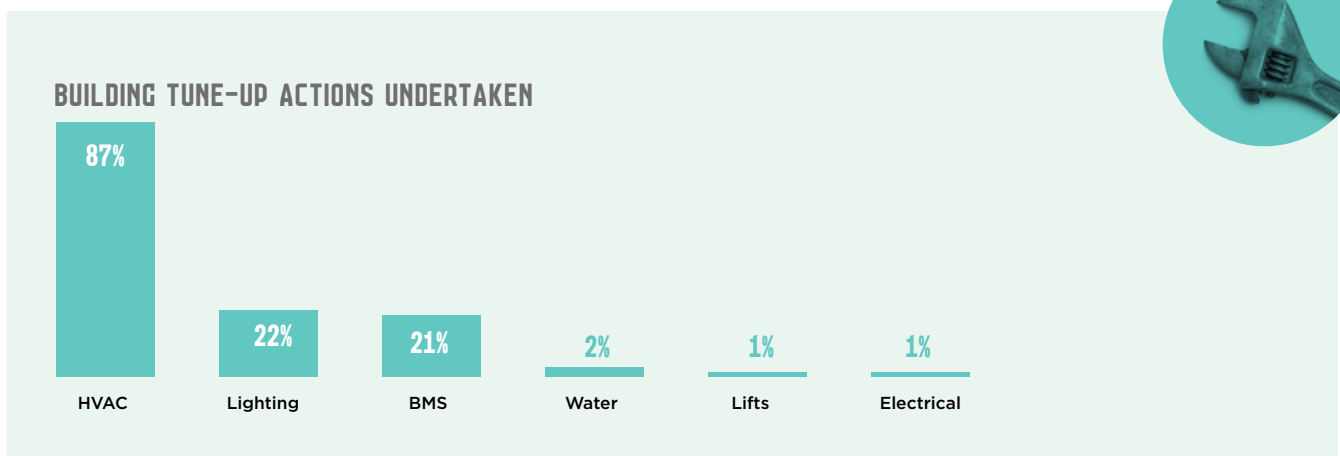
**Q: Are you currently or have you undertaken a building tune-up since 2008?**



**Figure 30** Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240



**Figure 31** Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105



**Figure 32** Total sample = 102

# BUILDING TUNE-UP ACTIVITY - FUTURE INTENTIONS (2013 TO 2018)

Q: Are you planning to tune-up your building in the next five years?

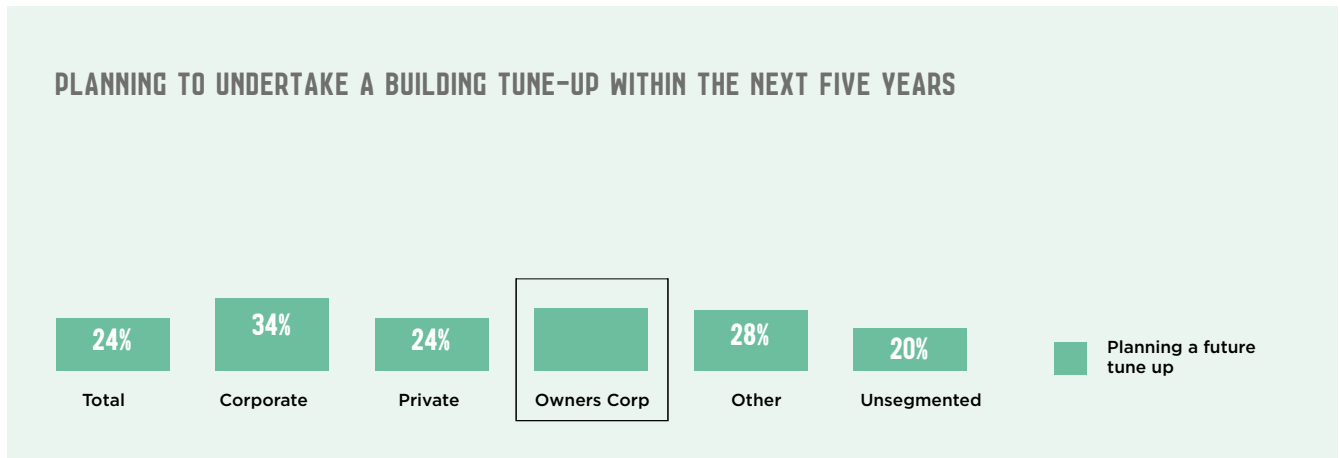


Figure 33 Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240

About a quarter of all buildings claimed to have a building tune-up planned. Corporate-owned buildings (34 per cent) were significantly more likely to be planning a building tune-up.

The likelihood of planning a building tune-up was significantly higher amongst the owners of Corporate buildings, although a sizeable proportion across all ownership categories were also planning tune-ups.

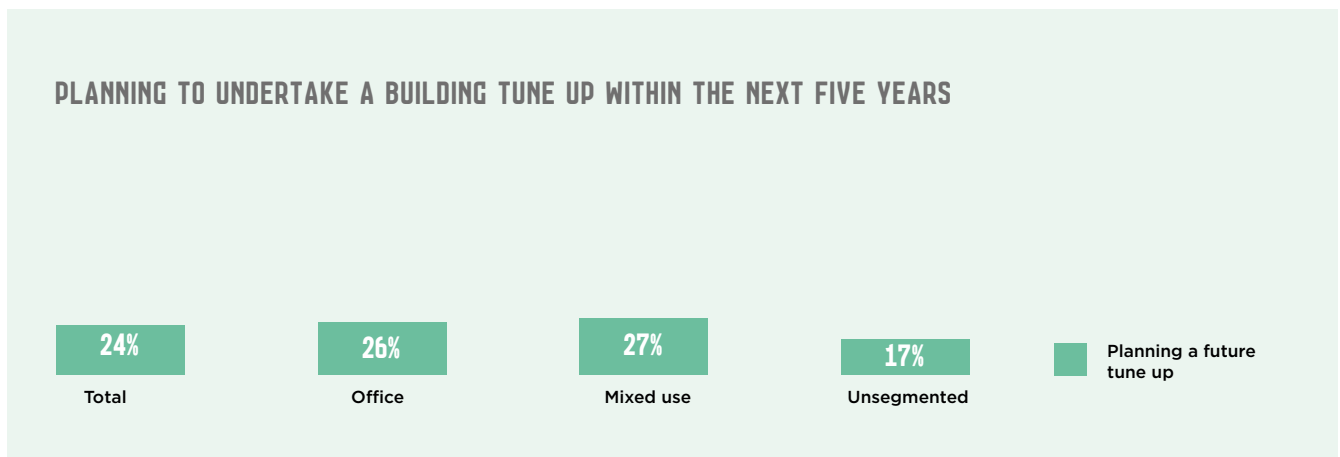


Figure 34 Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105

The intention to undertake a building tune-up did not differ significantly by building profile. However, the higher numbers of office buildings means this group represents the largest proportion compared with other building types.





**Q: Which of the following actions would your tune-up entail?**

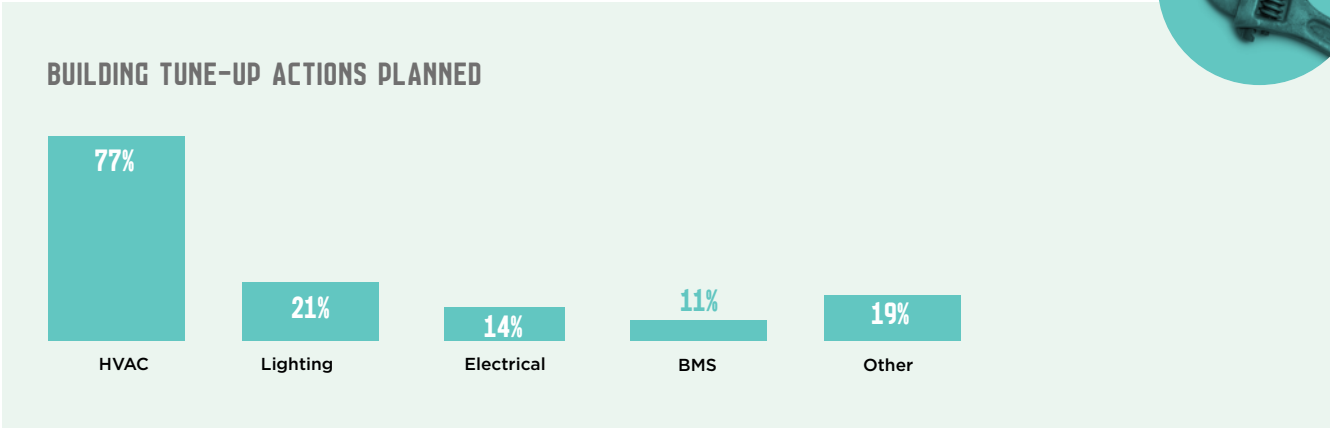


Figure 35 Total sample = 141

The tune-up actions that buildings plan to undertake in the future are consistent with actions that buildings have undertaken to 2013.

**Q: Is your next building tune-up a part of a regular tune-up schedule?**

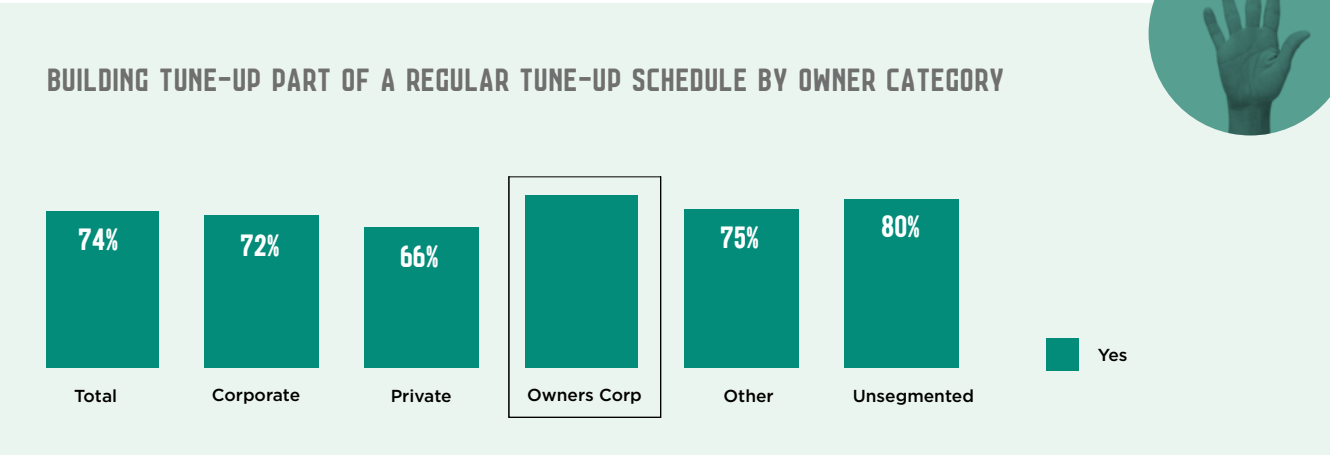


Figure 36 Total sample = 240, Corporate = 39, Private = 84, Owners Corporation = 10, Other = 29, Unsegmented = 78

Most building tune-ups appear to be part of a regular tune-up schedule, more commonly undertaken by the Corporate owner segment.

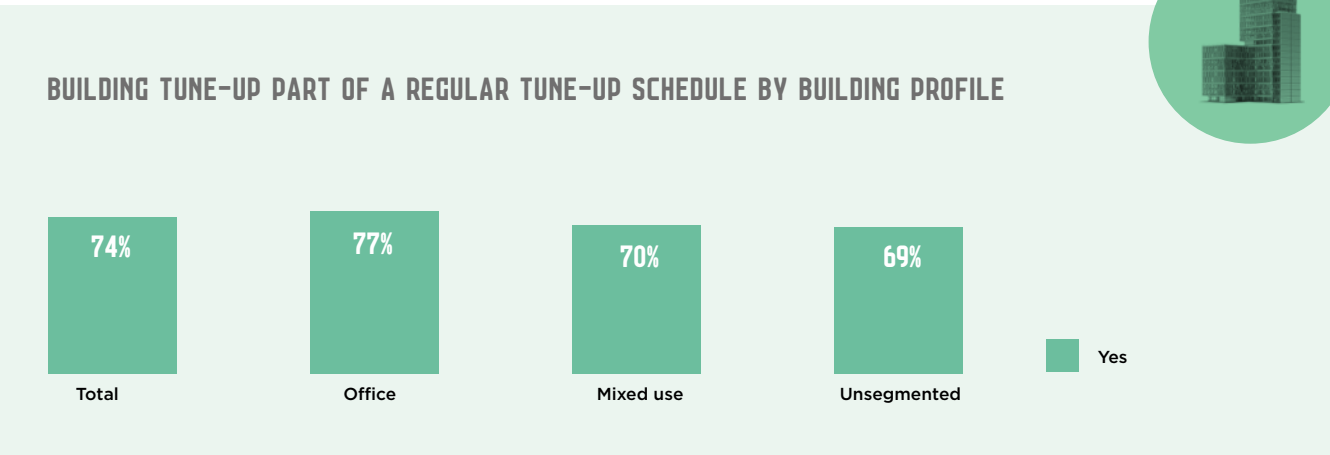


Figure 37 Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105

The building profile was not a significant driver of variance when considering the incidence of a once-off event versus a regular tune-up schedule.



# BUILDING MANAGEMENT

Q: When did you last undertake a building performance assessment?

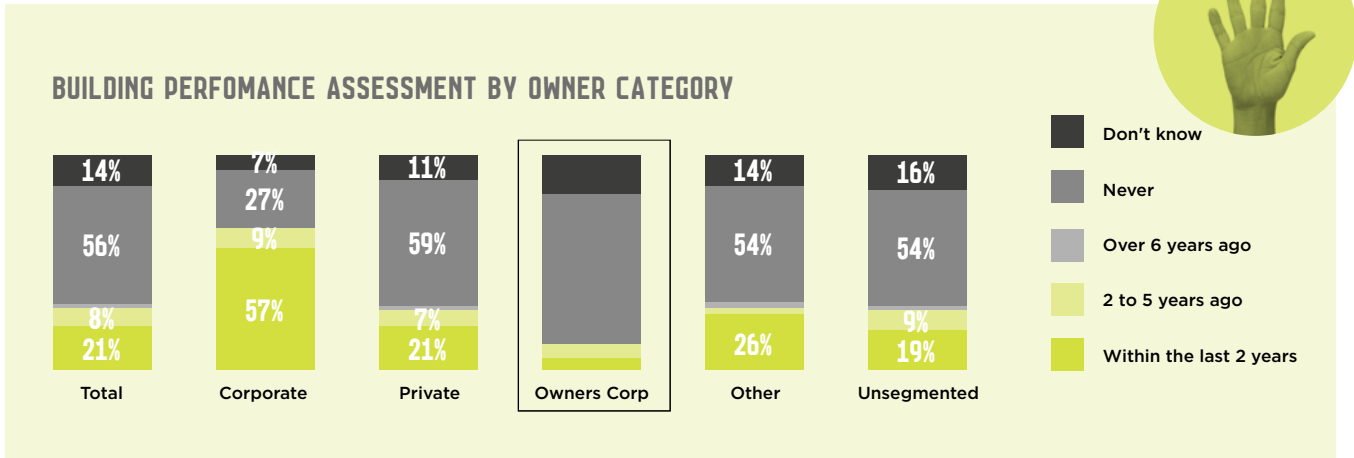


Figure 38 Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240

Thirty-one per cent of the buildings surveyed had undertaken a building performance assessment and two thirds or 21 per cent had undertaken an assessment in the past two years.

In the past two years the Corporate owner segment was significantly more likely to have undertaken a building performance assessment (57 per cent).

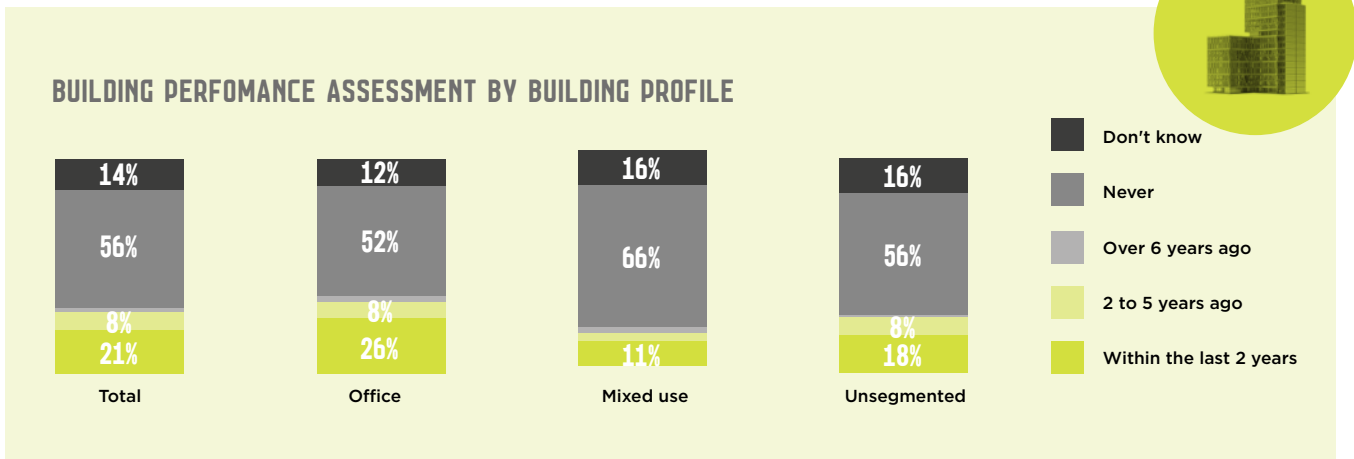
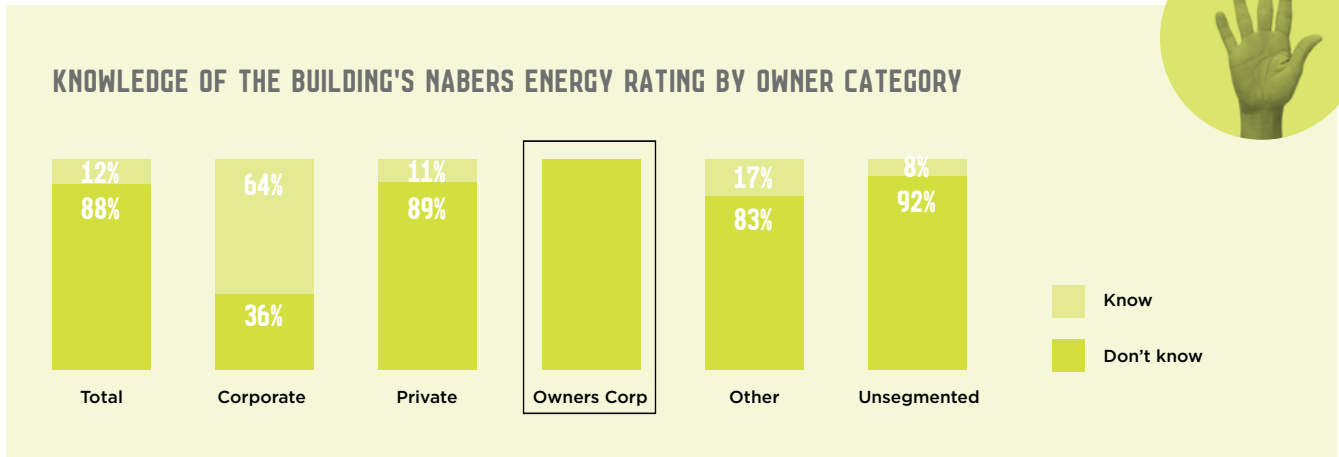


Figure 39 Total = 552, Office = 354, Mixed use = 130, Unsegmented = 105

Building performance assessments were more commonly undertaken for office buildings and the majority were undertaken over the past two years.

## What is the NABERS Energy rating of your building?



**Figure 40** Total sample = 589, Corporate = 56, Private = 210, Owners Corporation = 17, Other = 66, Unsegmented = 240

The majority of owners did not know the NABERS Energy rating of their buildings. However awareness was significantly higher among Corporate owners (64 per cent).

Compared with the 2011 results, knowledge of the building NABERS Energy rating has declined from 22 to 12 per cent.





# DRIVERS AND BARRIERS TO RETROFITTING

Q: What motivated you to retrofit this building?

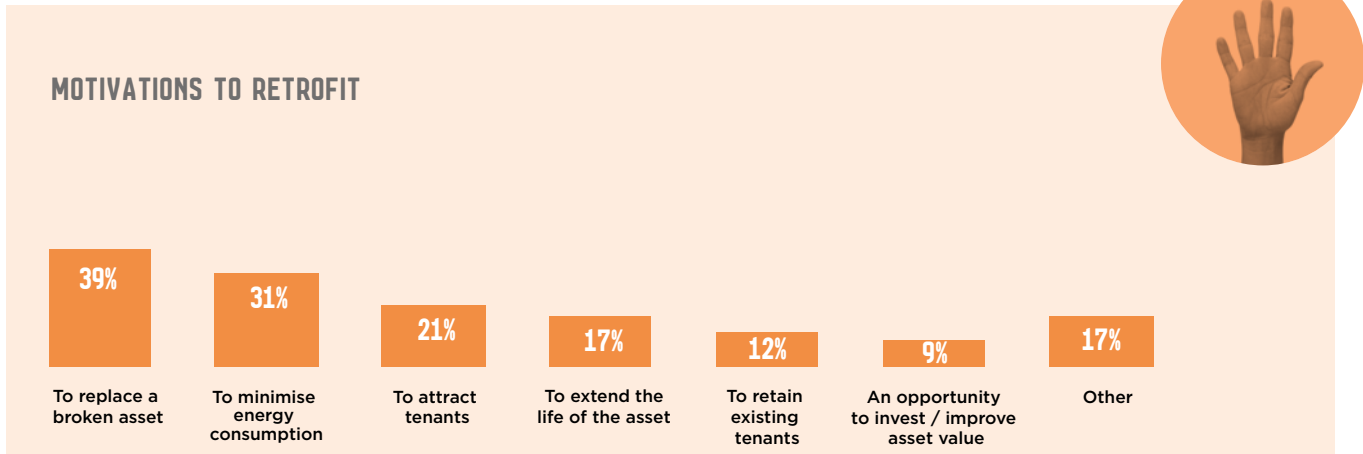


Figure 41 Total sample = 111

Replacing a broken asset was the most common motivation for retrofitting (39 per cent). The next most common motivation was to minimise energy consumption (31 per cent). The attraction of tenants (21 per cent) was a more significant driver than retaining existing tenants (12 per cent). A modest number of respondents cited the opportunity to invest and improve asset value (9 per cent).

Q: What motivated you to tune-up this building?

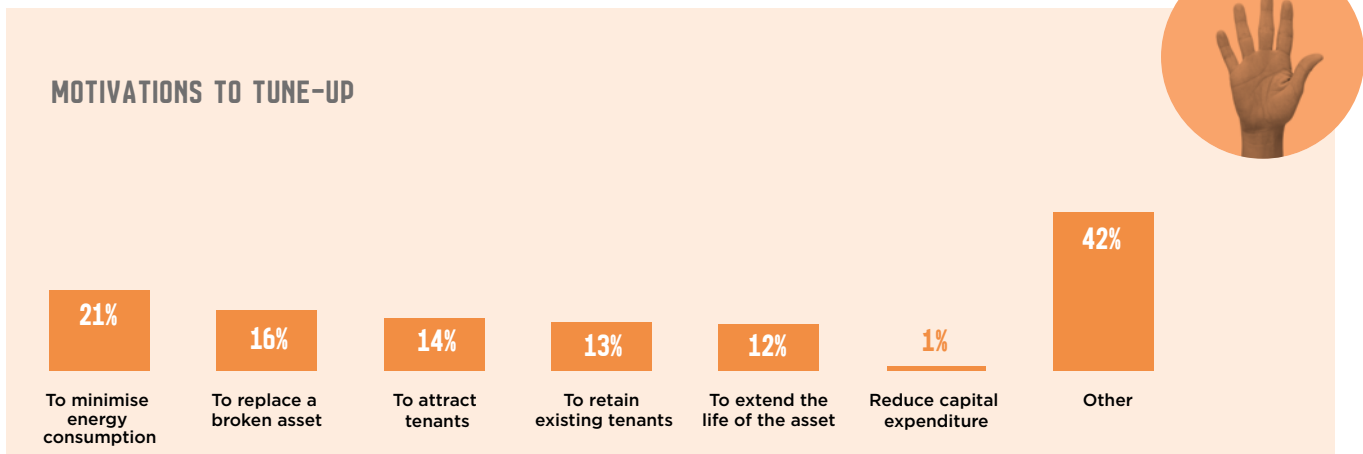


Figure 42 Total sample = 102

There were no clear drivers influencing motivation to undertake a building tune-up. Only 1 per cent of owners cited reducing capital expenditure.

For 16 per cent of respondents the building tune-up was motivated by a breakage (i.e. to replace a broken asset – “retrofit” rather than “tune-up”).

**Q: Do you see the retrofit as a cost or as an investment?**

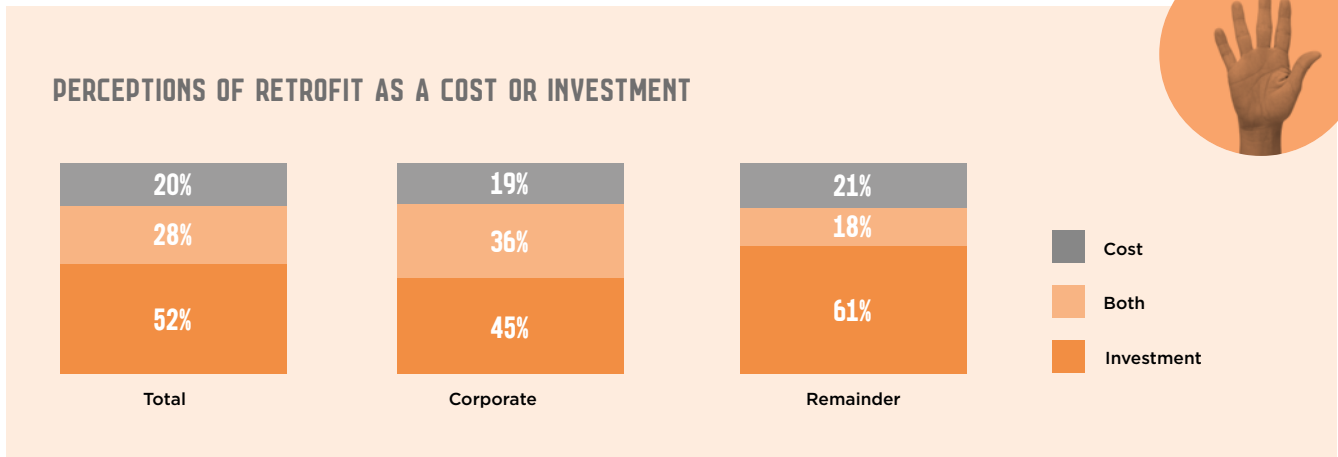


Figure 43 Total sample = 115, Corporate = 63, Remainder = 52

Fifty-two per cent of owners saw retrofitting as an investment compared with 20 per cent who perceived it as a cost only. It is notable that 61 per cent of the non-Corporate owners considered retrofitting as an investment.

**Q: How did you fund your most recent retrofit?**

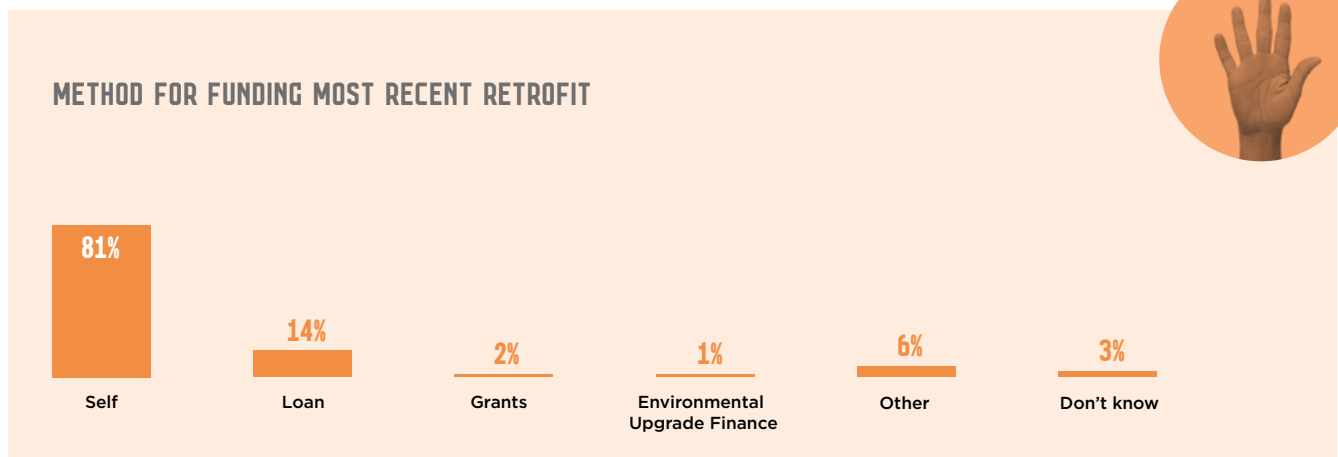


Figure 44 Total sample = 114

Most of the retrofits most recently undertaken were self-funded (81 per cent).

**Q: When did you last undertake a business case to evaluate the cost-benefits of a building efficiency upgrade?**

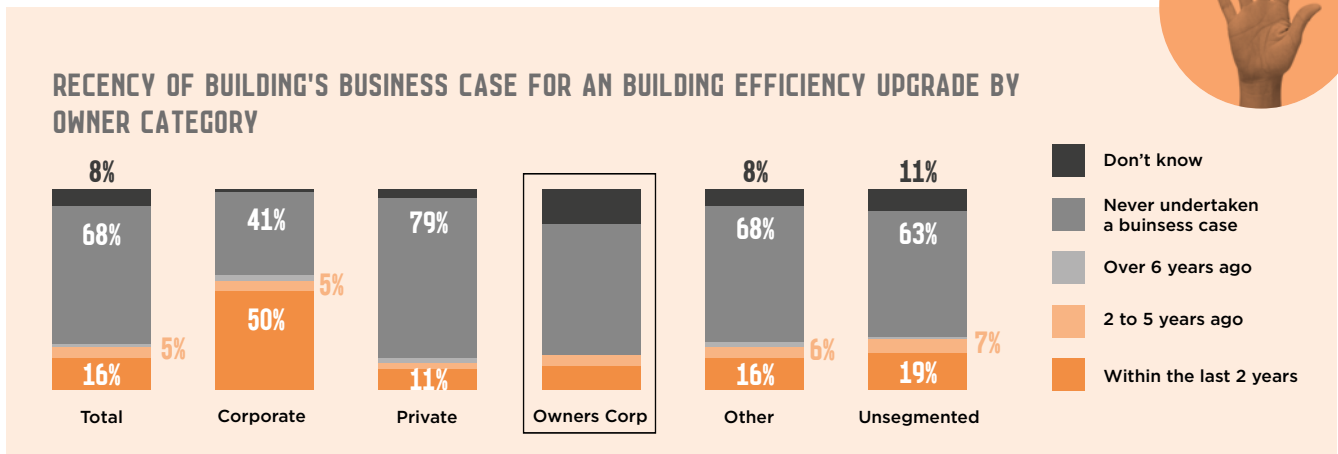


Figure 45 Total sample = 573, Corporate = 56, Private = 207, Owners Corporation = 17, Other = 63, Unsegmented = 230



Twenty-three per cent of all buildings surveyed (573 samples) had undertaken a business case to evaluate opportunities and costs in relation to retrofitting. More Corporate owners had undertaken a business case than the remainder of the sample.

**Q: Thinking of your willingness to retrofit your building over the next five years, how much of a barrier is:**

**1. the development of a business case**

**2. the split incentive**

**3. access to funding**

**4. access to consultants?**

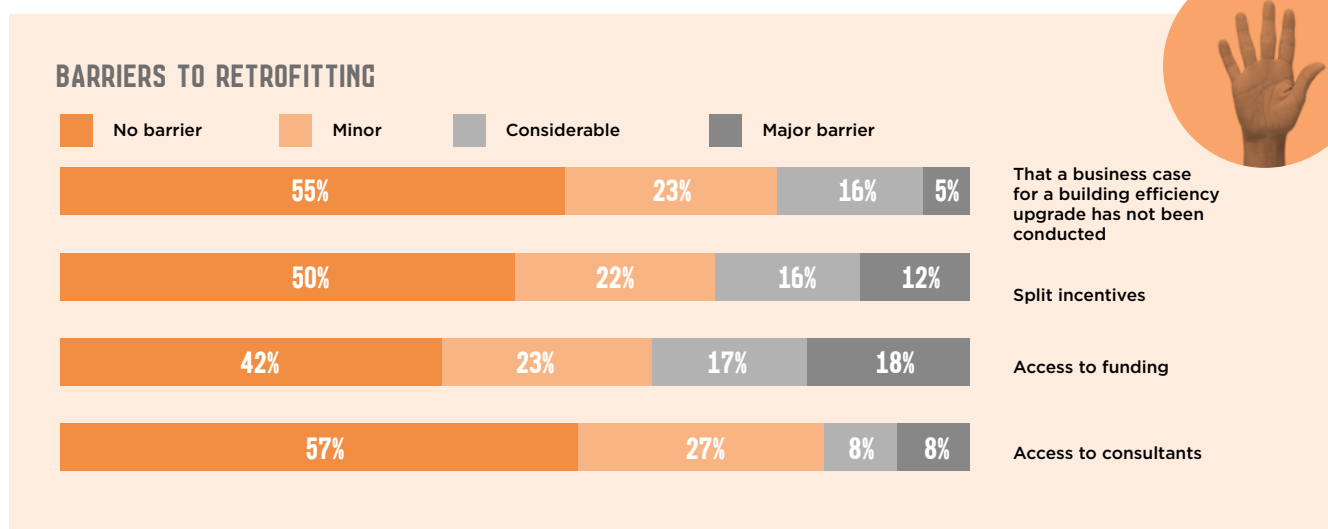


Figure 46 Business Case = 157; split incentive, access to funding and access to consultants = 195

The results listed in this section have not been segmented by ownership profile as there was no significant different between the Corporate, Private or Owners Corporation segments.

The four questions were posed to building owners considering a retrofit in the next five years to test perceived barriers:

**1. Developing a business case?**

The majority of respondents (78 per cent) did not consider developing a business case to be much, if any, barrier to retrofitting. Twenty-one per cent indicated it to be a “considerable” to “major” barrier.

**2. The split incentive?**

The majority of respondents (72 per cent) did not consider the split incentive to be much, if any, barrier to retrofitting. Twenty-eight per cent indicated it to be a “considerable” to “major” barrier.

**3. Access to funding?**

Access to funding proved to be the biggest barrier to retrofitting with 35 per cent indicating it was a “considerable” to “major” barrier.

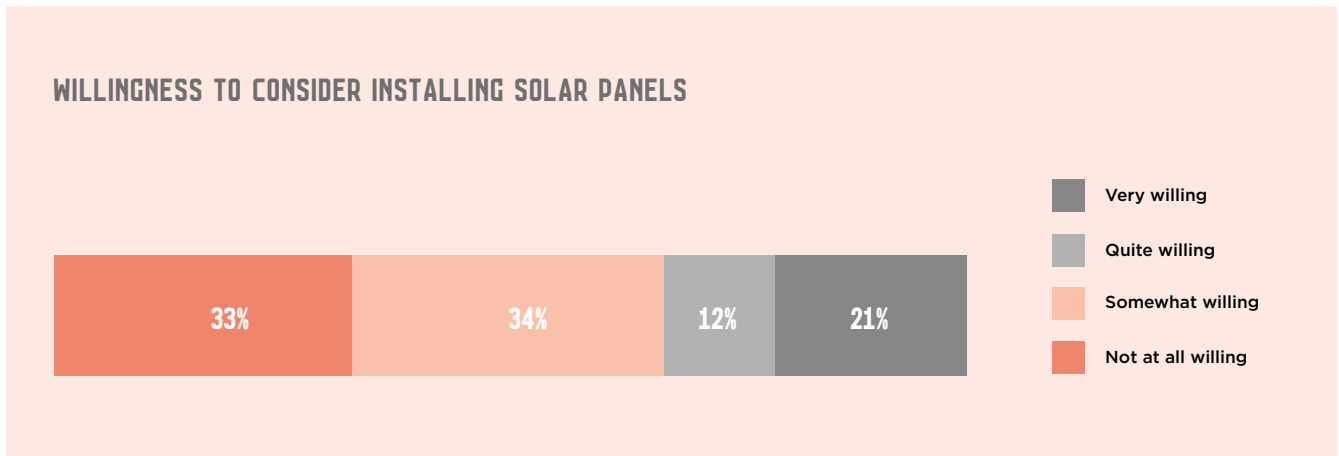
**4. Access to consultants?**

In most cases assess to consultants was not considered a barrier to retrofitting.



# DECENTRALISED ENERGY

**Q: How willing would you be to consider installing solar panels on the roof of your building?**

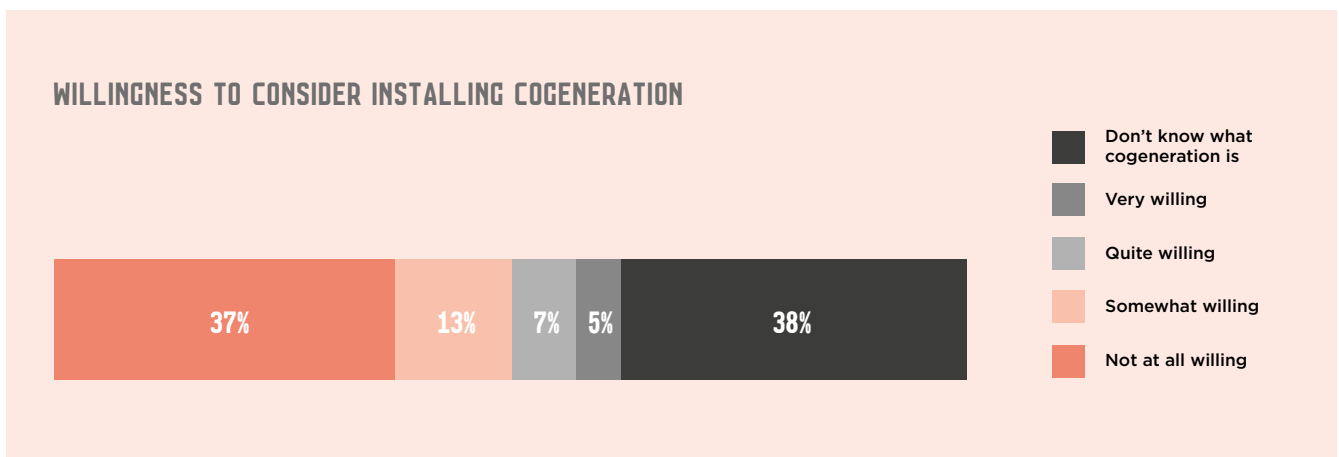


**Figure 47** Total sample = 183

None of the 183 building owners surveyed currently have solar panels although two 1200 Buildings signatory buildings have solar PV arrays.

Attitudes to solar panels were polarising with 33 per cent “quite” or “very willing” to consider installing panels and 33 per cent “not at all willing”.

**Q: How willing would you be to consider installing cogeneration?**

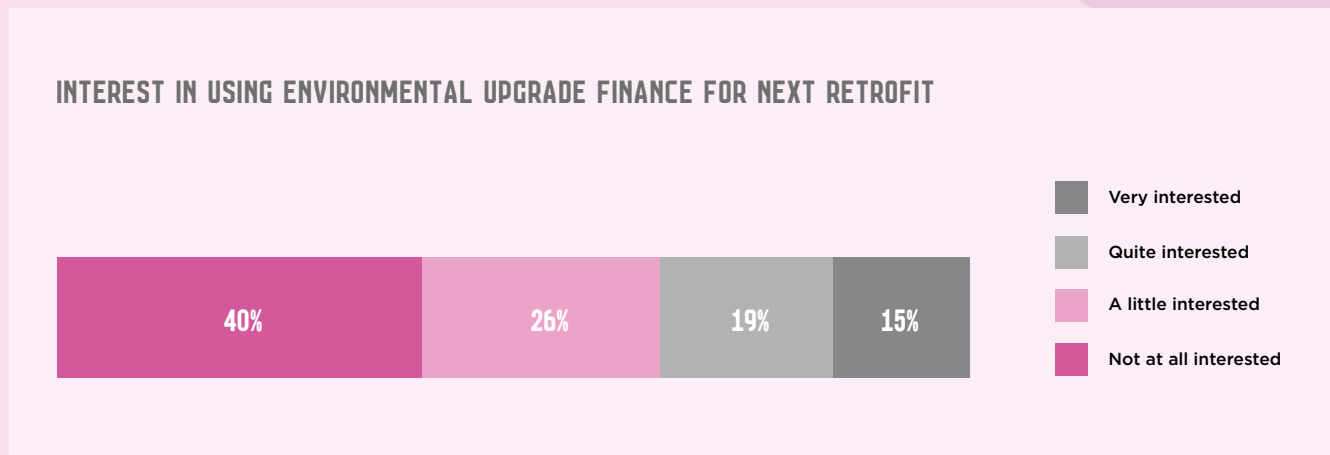


**Figure 48** Q16. Total sample = 192

Thirty-eight per cent of the owners representing 192 buildings did not know what cogeneration was and of the 62 per cent that were familiar with the technology, 37 per cent were “not at all willing” to install cogeneration.

# 1200 BUILDINGS PROGRAM EVALUATION

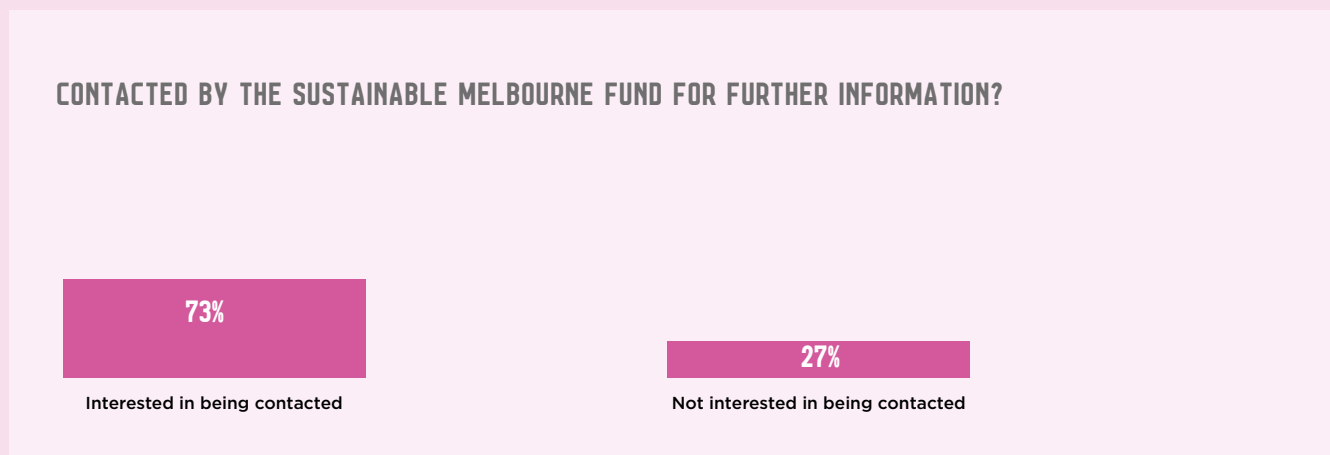
**Q: How interested would you be in using Environmental Upgrade Finance for your next retrofit?**



**Figure 49** Total sample = 194

Thirty-four per cent of owners representing 194 buildings were “quite” to “very interested” in Environmental Upgrade Finance and a further 26 per cent were “curious”.

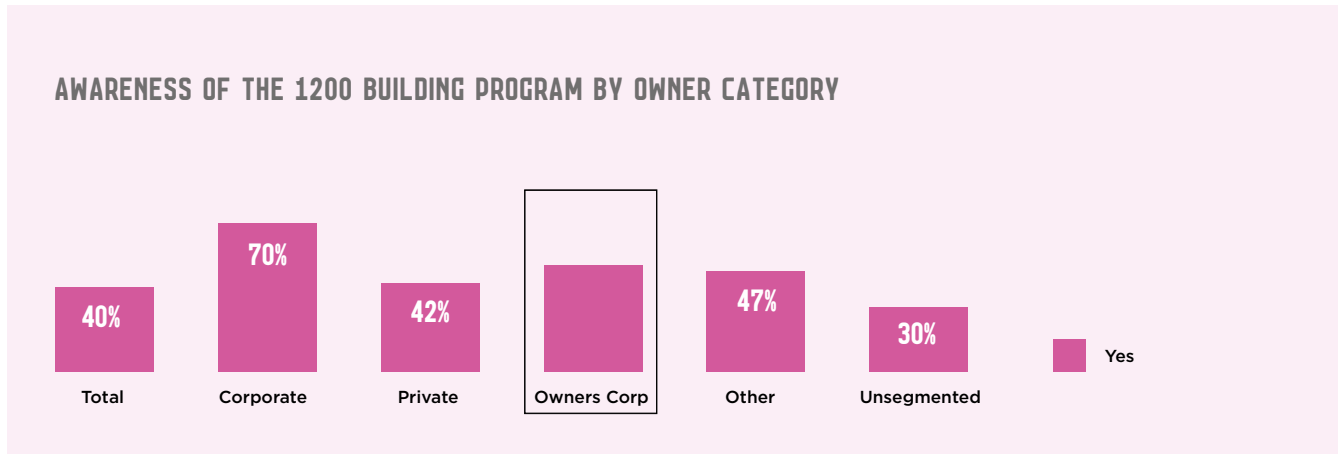
**Q: Would you be interested in being contacted by a representative of the Sustainable Melbourne Fund (SMF), the administrators of Environmental Upgrade Finance for further information?**



**Figure 50** Total sample = 123

Of those building owners who were “quite” or “very interested” in Environmental Upgrade Finance, 73 per cent would be interested in being contacted by a representative of the Sustainable Melbourne Fund regarding further information on Environmental Upgrade Finance.

**Q: Are you aware of the City of Melbourne’s 1200 Building Program?**

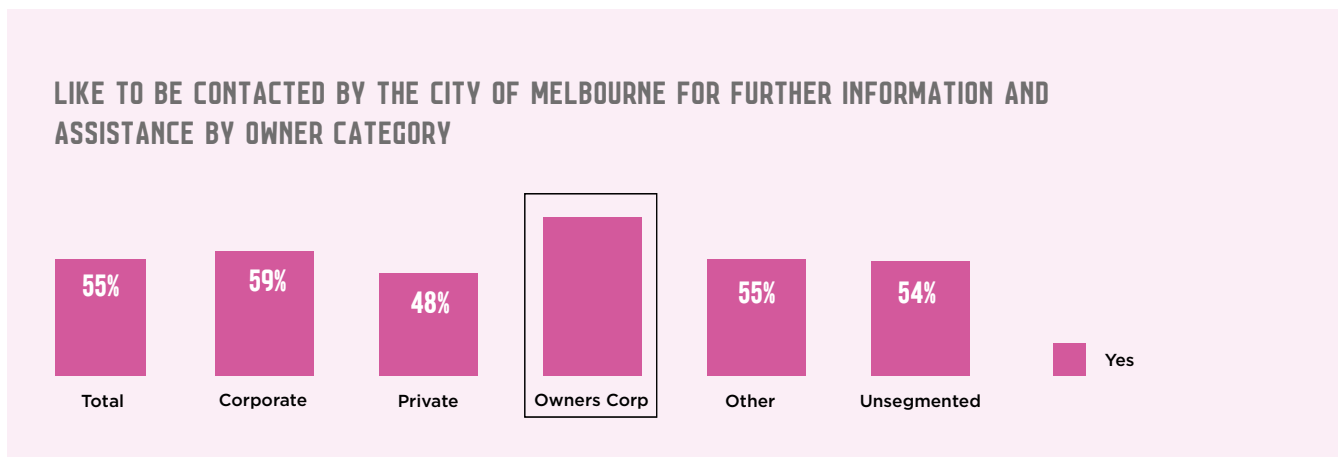


**Figure 51** Total sample = 563, Corporate = 56, Private = 202, Owners Corporation = 16, Other = 62, Unsegmented = 227

Awareness of the 1200 Building Program has increased from 25 per cent in 2011 to 40 per cent in 2013.

Program awareness is greatest in the Corporate owner segment (70 per cent) although this percentage has decreased since 2011 (81 to 70 per cent awareness by Corporates). Awareness of the 1200 Building Program has increased in the Private and Owners Corporation segments.

**Q: Would you be interested in being contacted by the City of Melbourne for further information and assistance?**



**Figure 52** Total sample, = 563, Corporate = 56, Private = 202, Owners Corporation = 16, Other = 62, Unsegmented = 227

Fifty-five per cent of all respondents would like to be contacted by the City of Melbourne for further information and assistance. The request for assistance was particularly prevalent in the Owners Corporation segment and less in the Private owner segment.



# CHARACTERISTICS OF OWNERS UNDERTAKING RETROFITS

The owners of buildings that had undertaken a retrofit since 2008 (including currently) were significantly more likely to:

- Be in a building with a base area greater than 2000 square metres
- Be higher building grades: Premium, A and B grades and less likely to be Z (unclassified) building grade
- Have been constructed between 1970 and 2000
- Be located in East Melbourne and Southbank and less likely to be in North Melbourne or West Melbourne
- Have been owned for 10 years or less
- Know their building's NABERS Energy rating
- Have last undertaken a business case to evaluate the cost benefits of a building efficiency upgrade within the past five years
- Have last undertaken a building performance assessment within the past five years
- Be from the Corporate owner segment
- Be internally managed
- To have a facilities manager
- Consider retrofitting as an investment
- Have self-funded their retrofit
- Be aware of the City of Melbourne's 1200 Building Program.

# HOW TO CONTACT US

## Online:

[melbourne.vic.gov.au](http://melbourne.vic.gov.au)

Telephone: 03 9658 9658

7.30am to 6pm, Monday to Friday

(Public holidays excluded)

National Relay Service: If you are deaf, hearing impaired or speech-impaired, call us via the National Relay Service: Teletypewriter (TTY) users phone 1300 555 727 then ask for 03 9658 9658.

9am to 5pm, Monday to Friday

(Public holidays excluded)

## In person:

Melbourne Town Hall - Administration Building

120 Swanston Street, Melbourne

7.30am to 5pm, Monday to Friday

(Public holidays excluded)

## In writing:

City of Melbourne

GPO Box 3603

Melbourne VIC 3001

Australia

Fax: 03 9654 4854

[MELBOURNE.VIC.GOV.AU/1200BUILDINGS](http://MELBOURNE.VIC.GOV.AU/1200BUILDINGS)

